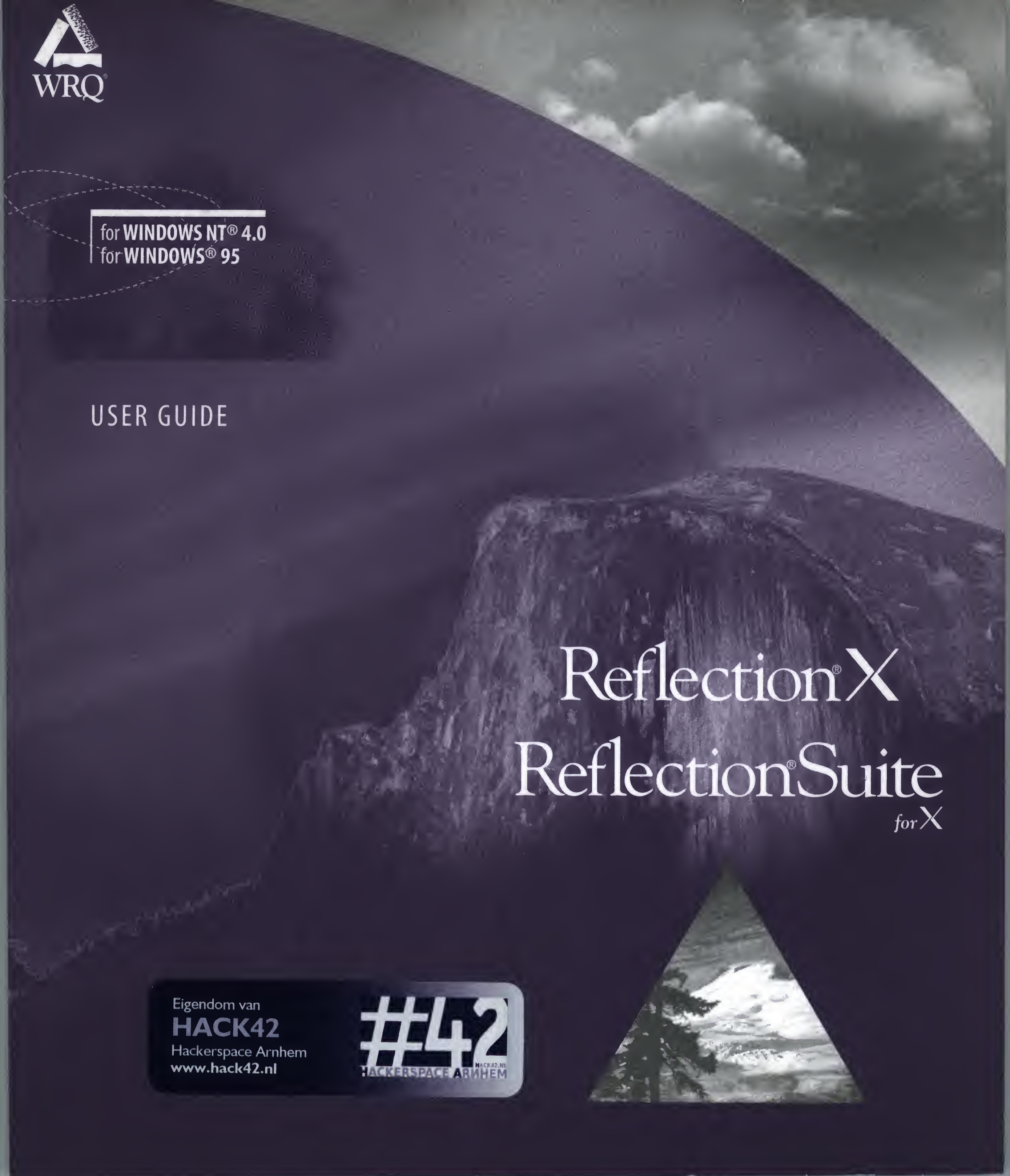
WRQ®

for WINDOWS NT® 4.0
for WINDOWS® 95

USER GUIDE

Reflection® X
Reflection® Suite for X



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The new Acrobat-format electronic manual files consist of the Reflection Technical Set, containing the full complement of documentation for your Reflection product. Reflection Technical Sets include System Administrator Guides and the Reflection Basic *User Guide*. Also included is an Acrobat-format version of this printed Reflection *User Guide*.

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User Guide names end with "UG," System Administrator Guides "SAG," and the Reflection Basic *User Guide* starts with "RB," shows the current date published, and ends in "UG."

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WRQ®

for **WINDOWS NT® 4.0**
for **WINDOWS® 95**

USER GUIDE

For use with:
Reflection X, version 6.2
Reflection Suite for X, version 6.7

Reflection® X
Reflection® Suite
for X

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Reflection X version 6.2
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for Windows 95 and Windows NT
User Guide
October 1997

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Please call your authorized Reflection distributor, or call WRQ for the name of the distributor nearest you.

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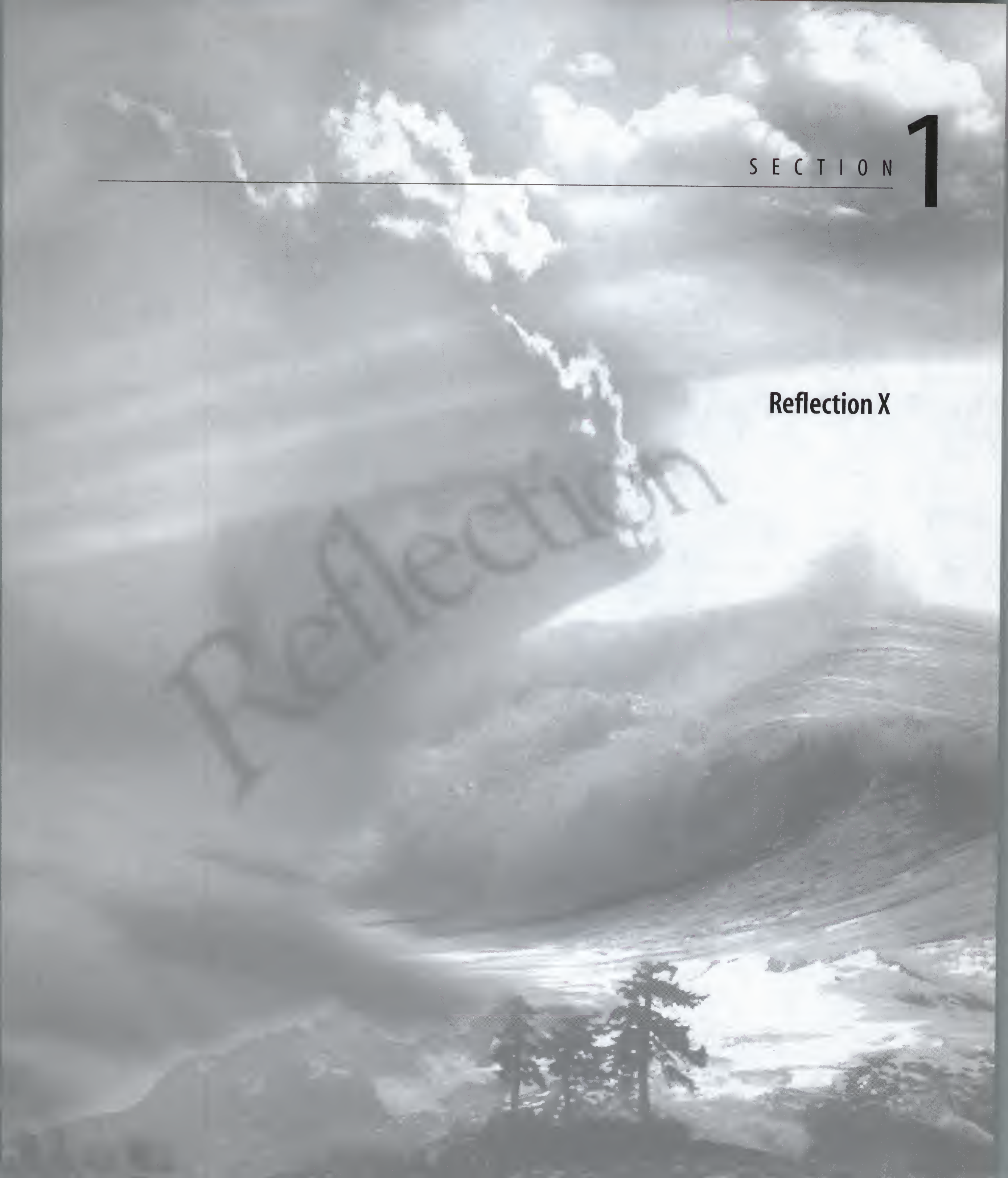
SECTION 1

Reflection X


Reflection

CHAPTER 1

Introduction

Welcome to Reflection X, the connectivity software product from WRQ that lets you run X clients alongside other Windows applications on your PC.

Stand-Alone vs. Suite

Reflection X is offered independently, and as part of the Reflection Suite for X. The stand-alone version provides:

- An award-winning **X server**
- A **Client Wizard**, to help you get started running X clients
- A **font compiler**
- The **Reflection Virtual Desktop**, a utility for enhancing your Windows desktop to give it the additional display power of an X terminal desktop
- **Reflection for UNIX and Digital** (required by the Client Wizard and for Reflection X serial connections) delivers VT420, VT320, VT220, VT102, and ANSI text emulation
- An **FTP client** application, for transferring files between your PC and an FTP server

The stand-alone version of Reflection X is for users who don't need Reflection for IBM or the network applications and utilities that are part of the Reflection Suite for X (described on page 4).

You can run Reflection X over TCP/IP, DECnet, a serial line, or any combination of these transports. In addition to this 32-bit edition (for Windows 95 and Windows NT), a separate 16-bit edition (for Windows 3.1 and 3.11) is also available. There is also a version of Reflection X for Windows NT specially designed for Alpha AXP (a non-Intel NT architecture).

Reflection Suite Components and Features

Reflection Suite for X adds these PC-to-host connectivity and networking components to the stand-alone edition of Reflection X:

Mainframe and AS/400 Host Connectivity (Reflection for IBM)

Offers mainframe connections over TN3270 and TN3270E (Telnet Extended), and AS/400 access over TN5250. TN3270 and TN3270E host access includes support of IBM 3179-G graphics terminal emulation. 3287 host printer emulation over Telnet and Telnet Extended is also available. HLLAPI and Windows HLLAPI support is included for both 3270 and 5250 sessions, as well as DOS HLLAPI support in 3270 sessions. Although Telnet does not support the AS/400 data transfer feature (use FTP instead), Reflection for IBM allows you to perform AS/400 data transfer over NS/Router.

NFS Client

The Network File System protocol used to access files and printers on an NFS server, such as a UNIX host. Install the Reflection NFS Client if you have an NFS server in your environment and want to have access to its file and/or print services.

LAT

The LAT protocol allows a PC to connect to Digital hosts and servers. Standard LAT configuration support—defining groups, managing a name table, and managing other LAT protocol parameter—is provided.

Network Applications

These are robust 32-bit host access applications for UNIX, Digital, mainframe, and AS/400 host connectivity. They include:

- **LPR**—accesses printers attached to other machines on the network.
- **Ping**—detects the operating status of a specific host.
- **Network Event Viewer**—allows you to review a log of network events.
- **Reflection TimeSync**—synchronizes time between Windows 95 or Windows NT 4.0 desktop clocks and network time servers.
- **Server Manager**—configures and manages server applications, such as LPD (line printer daemon), FTP Server, Web Server, Finger Server, and several troubleshooting tools.

Where to Find Information

This *User Guide* introduces you to Reflection X and to the X Window System. It shows you how to get started with Reflection X, how to establish connections, and how to work with Reflection X. It also provides some information about using the other components of Reflection Suite for X.

The first section of this book covers installation, X-specific features, and functionality. The second section describes Reflection for UNIX and Digital, Reflection for IBM, Reflection NFS Client, and Reflection FTP. (For documentation on other Reflection Networking Products, see the online help.) System administrators will find the information they need—regarding Reflection X keywords, initialization files, centralized site administration, custom help files, and OpenVMS system management—in the online help.

Reflection Electronic Manuals

Included on the Reflection CD in electronic format are several additional manuals intended for the person who must set up and control the environment in which a group of Reflection users work. These electronic manuals use the Adobe Portable Document Format (PDF). They must be viewed using Adobe Acrobat Reader version 3.0 or higher (which is also provided). For instructions on how to install Adobe Acrobat Reader and how to open and view the electronic manuals, see the card bound inside this manual or search for *Electronic manuals* in the online help.

The following online manuals are included:

- The Reflection Networking Products *System Administrator Guide* provides a general reference for all network applications and management tools.
- The Reflection for UNIX and Digital *System Administrator Guide* explains how to set up and maintain Reflection for users in diverse computing environments. Topics include maintaining multi-user license versions of Reflection, ensuring security, file transfer, and troubleshooting.

- The Reflection for IBM *System Administrator Guide* covers host system requirements, troubleshooting, HLLAPI, Windows HLLAPI, Reflection's system administration utilities, and provides NS/Router configuration tips.
- The Reflection Basic *User Guide* introduces WRQ's proprietary programming language, Reflection Basic, that is installed as part of Reflection for IBM and Reflection for UNIX and Digital. It describes, using examples and procedures, how you can build script files using the Reflection Basic Editor, and use these scripts to automate your interaction with host computers.
- This *User Guide* is also included on the CD in electronic format.

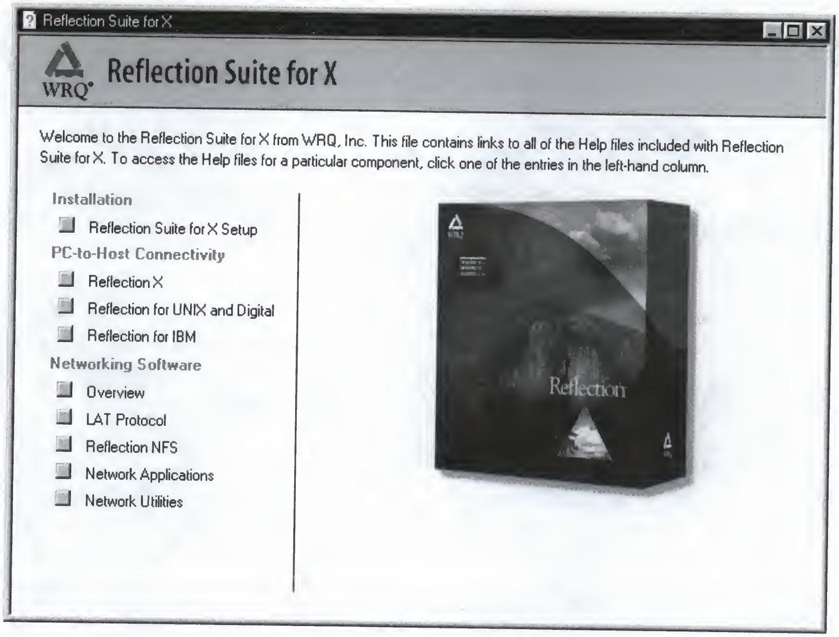
Using Online Help

The online help is your most complete resource for information and troubleshooting. In any WRQ product:

- Click Contents (or Help Topics) on the Help menu, or
- Click the Help button in any dialog box.

For an overview of all available help for the Reflection X product components (Reflection X, Reflection FTP, Reflection for UNIX and Digital, and—if you have Reflection Suite for X—Reflection for IBM and the network applications):

- Go to the Start menu, select the Reflection folder, the Documents folder, and then click the X Help icon. This screen has links to all of the help files included with your product (Reflection X or Reflection Suite for X, depending on what you installed).



Reflection Suite for X

WRQ

Reflection Suite for X

Welcome to the Reflection Suite for X from WRQ, Inc. This file contains links to all of the Help files included with Reflection Suite for X. To access the Help files for a particular component, click one of the entries in the left-hand column.

Installation
Reflection Suite for X Setup
PC-to-Host Connectivity
Reflection X
Reflection for UNIX and Digital
Reflection for IBM
Networking Software
Overview
LAT Protocol
Reflection NFS
Network Applications
Network Utilities
Reflection

The online help takes full advantage of the features in Windows help:

- You can see a brief description of every item in a dialog box by clicking the question mark in the upper-right corner, then clicking a field in the dialog box. You can also right-click on a field and then click the "What's This" label that appears.
- Use the Index tab or the Find tab in Windows help to search for a particular word or phrase. The index is a better starting point; use the Find tab if what you're looking for isn't in the index.
- You can print whole sections of the online help by selecting a "book" in the Table of Contents, and then clicking Print.

Important Terms

The following terms are used throughout this manual:

application window
This is the main Reflection X user interface. To open the application window, click the Reflection X icon. For information on using the application window, see "Using Client Files" (pages 29–46). And see pages 75–76 for information on changing the appearance of the application window.

client file
A client file is an ASCII file that contains all the information Reflection X needs to run an X client. You can run a client file from the application window or from an icon or shortcut.

window manager
A window manager is software that allows you to move, resize, circulate, maximize, and minimize X client windows. With Reflection X you can use Microsoft Windows as your window manager (in which case you control X client windows just as you control Windows applications). Another option is to run a remote window manager, such as Motif or the OpenLook window manager. Remote window managers are actually X clients that run over the network. A third option is to use the Reflection Window Manager, which looks and behaves like a remote window manager (it's modeled on Motif), but runs locally. See page 85 for information on the Reflection Window Manager.

XDMCP
The X Display Manager Control Protocol (XDMCP) allows Reflection X to communicate with an X Display Manager (XDM) running on a particular host machine. Under XDMCP, the host controls how the X environment is configured: if a host supports XDMCP, this is the simplest type of connection to make, so most connection settings (except user name and password) are irrelevant. XDMCP is available only if you are using the TCP/IP transport.

User directory
When you install Reflection X, Setup prompts you to specify a name for the User directory—the default is "User"; the default location is as a subdirectory of your Reflection directory. Files specific to an individual user, including client files, are stored in the User directory. Other Reflection products may also store files here. See the System information in the Reflection X About Box if you need to identify your User directory.

The X Window System

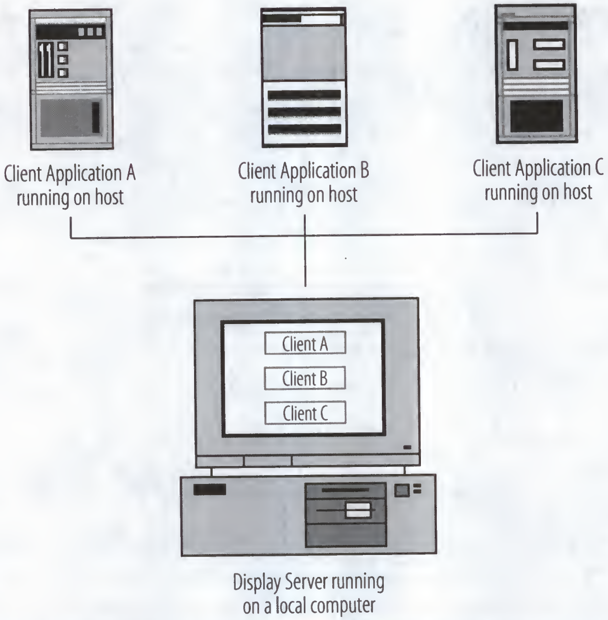
The X Window System is a portable, multi-user graphical window system originally developed at MIT. “Portable” means that it can run on many types of host computers, including OpenVMS and a variety of UNIX hosts. “Multi-user” means that many users can have simultaneous access to X applications by connecting to the host over a network or with a serial connection. As a window system, X allows users to run several applications at one time, each in its own window (similar to Microsoft Windows).

X applications provide the graphical user interface for many host-based environments, including the Hewlett-Packard Visual User Environment (HP VUE) and the Common Desktop Environment (CDE). X applications are also commonly developed for engineering, scientific, and manufacturing purposes.

The X Window System is based on a client/server model:

- The *client* is an application program that runs on a host computer.
- The *X display server*—Reflection X—is the intermediary software between the client application programs and the local display hardware and input devices (a mouse or keyboard). The server tracks all input and conveys it to the relevant client applications. The server also keeps track of output from clients and updates the display accordingly.

This division in the X Window System architecture allows the clients and the display server to reside on different machines. The client applications reside on minicomputers and mainframes while the server runs on the local computer.


Client Application A running on host
Client Application B running on host
Client Application C running on host
Client A
Client B
Client C
Display Server running on a local computer

An X display server lets you run several host-based client applications at one time

Because the X display server runs on a local machine, client/server terminology often seems reversed to people new to the X Window System. As a display server, the local machine provides the services of the local system (display, keyboard, and mouse) to applications (clients) running on other machines.

CHAPTER 2

Installing and Configuring Reflection

This chapter provides a general overview of how to install and configure Reflection, with information about:

- Reflection X hardware and software requirements.
- Installing Reflection on a single PC or a shared network drive.
- Configuring workstations to run the product from a shared network drive.
- Distributing a multi-user version of the product from a network.
- Removing Reflection from your PC.

About the Setup Documentation

As you're running Setup, use the online help if you need more detail than this chapter provides. The online help is your most complete resource for all Setup and troubleshooting information, including advanced installation topics (such as how to automate your installation) and descriptions of the Setup error messages.

To view the Setup online help:

- Click the Help button in any of the dialog boxes that guide you through the Setup program.
- After installing Reflection, you'll see the Reflection X Setup help file (Setup.hlp) in your Reflection folder. A typical folder location for the Reflection X Setup help file is:

```
\Program Files\Reflection\Setup\Rx2
```

Note: When you configure a workstation to run Reflection from a shared network drive (explained on page 18), Setup does not copy Setup.hlp to the local workstation; Setup.hlp remains on the shared network drive. ▲

Requirements

To install Reflection Suite for X, you need the following. The disk space requirements are smaller for Reflection X as a stand-alone product; all other requirements are the same:

- The Reflection Suite for X CD-ROM.
- A CD-ROM drive.
- An 80386-based, 80486-based, or Pentium-based PC.
- Microsoft Windows 95 or Windows NT version 4.0. Windows NT version 3.51 is not supported.
- A PC hard disk or a shared network drive.
- Two megabytes (MB) of temporary disk space to run the Setup program.
- Memory requirements are determined by the operating system:
  - Reflection X on Windows 95 requires at least 4 MB of memory; 6 MB of RAM are recommended.
  - Reflection X on Windows NT requires at least 12 MB of memory.
- The amount of disk space you need depends on the type of installation. To see how much disk space you have available, use Windows Explorer (right-click on the drive and select Properties).

Installation Option	Disk Space
Minimum	43 MB
Typical	89 MB
All (complete)	116 MB

- A display adapter (VGA or better) supported by Windows.
- A mouse (not technically necessary but hard to do without).
- For connecting to host computers, you need hardware and software for making TCP/IP, DECnet, or serial connections to a host. These requirements are described next.

Host Connection Requirements

Reflection X includes components that require networking hardware and software for connecting to a host over TCP/IP, DECnet, or a serial interface:

- Reflection X can use TCP/IP, DECnet, or a serial connection
- Reflection for UNIX and Digital can use TCP/IP, LAT, or a serial connection
- Reflection FTP Client can use TCP/IP only
- Reflection for IBM uses Telnet over TCP/IP to connect to mainframe and AS/400 hosts

The stand-alone version of Reflection X is for users who don't need Reflection for IBM or the network applications and utilities that are part of the Reflection Suite for X (these components are described on page 4).

TCP/IP Connection Requirements

To use the network applications and utilities, you must have Microsoft's TCP/IP software installed on the PC and configured correctly for your network environment. TCP/IP is included with the Windows 95 and Windows NT operating systems. Your TCP/IP software determines the network interface card requirements.

Reflection X and Reflection Suite for X use Windows Sockets support to connect to host computers over TCP/IP and require:

- An Ethernet or Token-Ring network card. The Reflection LAT Protocol requires an Ethernet network card.

Using TCP/IP for Mainframe and AS/400 Host Connectivity

Reflection Suite for X includes a Telnet-only version of Reflection for IBM. This version uses Telnet over TCP/IP to make mainframe and AS/400 host connections.

You can also print from a mainframe host as an IBM 3287 printer over Telnet. However, only IBM hosts with the appropriate hardware or software implementation (for example, from OpenConnect or McData) can support 3287 printing over Telnet. (No special hardware or software is needed on the PC.)

Telnet does not support the AS/400 data transfer feature. Use FTP to transfer files instead. For instructions on how to use Reflection FTP Client to transfer files between your PC and an FTP server, see page 159.

DECnet Connection Requirements

PATHWORKS is the software required for using DECnet as a transport for Reflection X and is available from Digital Equipment Corporation. Use the appropriate version of PATHWORKS for your platform:

Platform	PATHWORKS Version
Windows 95	1.0a or 7.0
Windows NT 4.0	7.0

The PC requirements for this software depend on what version you have:

- Pcx$server.com, which is part of PATHWORKS, is the simplest method for starting clients over DECnet. This file must first be defined as a DECnet object (see the System Administrator online help for a description of how to do this).
- If for some reason Pcx$server.com isn't available on the host, you can use Startapp.com to run individual X clients, or Startsm.exe, to run the DECwindows Session Manager. During installation, these files are copied to the VMS directory as Startapp.crx and Startsm.erx, respectively. The procedures for setting these up on the host are described in "Running OpenVMS Applications without Pcx$server" in the Reflection X System Administrator online help—this may have already been done for you. Search for *Startapp.com* in the online help to find this information.

Serial Connection Requirements

Reflection X includes Reflection Xpress and Reflection for UNIX and Digital, which together enable you to start X clients over a modem or a dedicated serial link from an RS-232 connection. Reflection Xpress is serial technology developed by Tektronix, Inc.

In addition to using Reflection Xpress for serial connectivity to OpenVMS and UNIX hosts, you can use a serial interface to make PPP/SLIP connections to remote hosts through a remote access server on your TCP/IP network.

Hardware Requirements for Serial Connections

For connecting to a host over a dedicated serial link, your PC must have a serial port and a direct RS-232 cable connection. For connecting to a host over a modem, your PC must have either an external modem with an RS-232 cable connected to it or an internal modem card.

Software Requirements for Serial Connections

To make serial connections to UNIX or OpenVMS hosts and start X clients with Reflection Xpress, a set of files must also be installed on the host to which you will be connecting. Your system administrator may have already done this for you. For information about configuring Reflection X and Reflection for UNIX and Digital for serial connections, search for *Serial connection* in the online help for Reflection X.

Installing a Single-User Version of Reflection

If you purchased an individual single-user version of Reflection X or Reflection Suite for X, you received a master CD-ROM for individual PC use. Here's what you need to do:

1. Close any other Windows applications. This is important because the Reflection Setup program needs to update files that these applications share.
2. Put the Reflection CD in the CD-ROM drive. If this is the first time you've used the disk, Setup starts up automatically—skip to step 5.
3. Click Run on the Start menu.
4. Type in the path for the Reflection product disk, followed by `Setup`, then click OK.

5. When you are offered the choice to install the suite or to install Adobe Acrobat Reader, choose the suite option. (See the card bound into this manual for information on installing and using Adobe Acrobat Reader to view Reflection online manuals.)

6. A few moments will pass as you see the text "Initializing Setup. Please wait..." In the next dialog box, click View README, or click Continue to proceed directly with the installation.

7. Accept the default path (\Program Files\Reflection) where Setup will copy program files. To change the proposed path, type the new path in the box, then click Next.

8. Accept the default User folder path (\Program Files\Reflection\User) or type in a different path. This is where Reflection stores user files, such as Reflection X client files. Then click Next.

   In earlier versions of Reflection X (before version 6.0), client files were kept in the same directory as the program files. If you want to be able to see these older client files (*.rxc) together with the ones Setup copies for you, move them to the User folder after you've finished installing Reflection X.

9. Select the components to install. Click Next to perform the default installation. To customize a component, select it, then click Details. A shaded check box means not all of the files associated with the component are selected.

10. Confirm the program folder for the Reflection icons, then click Next. To prevent the creation of program icons, select the **Do Not Create Reflection Icons** check box.

    If you are installing the NFS Client, Setup gives you the opportunity to enable NFS password caching.

11. Specify whether you want passwords to be saved to your Reflection X client files.

12. Specify which connection types you intend to use with Reflection X.

    The types you select depend on the way you plan to connect to X clients running on host computers. If you connect over a TCP/IP network, select TCP/IP, and use Windows Sockets compliant TCP/IP software to connect to hosts. If you connect over a DECnet network, select DECnet and use PATHWORKS networking software from Digital—see page 14 for information on which version of PATHWORKS is required for your PC. If you connect over a serial connection, select Serial and use Reflection Xpress to connect to hosts—see page 69 for information on using Reflection Xpress.

13. If you are installing Reflection for UNIX and Digital, Setup next prompts you to add optional host connection icons to the Reflection folder or program group. Each icon starts Reflection for UNIX and Digital and loads a settings file that preconfigures it for a connection to a specific type of host or service.

14. Setup is now ready to install Reflection. Click Finish to complete the installation of Reflection. Setup shows you each file name as it is copied.

15. The final dialog box indicates that the Setup program successfully installed Reflection. Click the Restart Windows button when it appears.

Setting Up a Multi-User Version

Typically, sites with a multi-user version install Reflection on a network so a system administrator can manage the product from a central location and multiple users can run the software from the network. Before you can run a Reflection product from the network, you must:

- Install the software to a shared network drive.
- Configure each workstation to run the software from the network drive. Follow the procedure starting on page 18.

When installing Reflection to a shared network drive or configuring a workstation to run a Reflection networking product from the network, you must have write access to the drive. You must also install from a workstation that recognizes the file server as a network drive, rather than a local drive. From the workstation, the file server should have a network drive letter designation such as H, rather than a local one, for example, C.

To install the suite on a network server, follow the installation procedure starting on page 15. A multi-user installation is similar to the single-user version installation, with the following exceptions:

- When Setup prompts you for the Reflection folder path, specify a network drive. If you are installing to a server that supports Universal Naming Convention (UNC) paths, such as an NT server, the following syntax is used instead of a network drive letter for installation:

  ```
  \\<servername>\<sharename>\<pathname>
  ```

- Setup will not prompt you to respond to some questions until later, when you configure the local workstation to run the Reflection product from the network.
- After copying files to the network, Setup prompts you to configure the local PC to run the Reflection product.
- You can use a Windows 95 or Windows NT 4.0 machine to install Reflection on a server. Local configuration of Windows 95 and Windows NT 4.0 will install and configure the appropriate components for either platform.
- After installing Reflection on the network, you must configure other networked PCs to run Reflection from the shared network drive; see the next section for information.

Configuring a Workstation to Run Reflection from the Network

After you install a multi-user version of Reflection Suite for X on a shared network drive, you need to configure each PC or workstation to run Reflection from the server.

During the procedure, Setup will copy some files to your hard disk, including user files (default settings files, sample files, and so on) and system files, and create program icons on your local desktop.

To configure a workstation to run Reflection from a network:

1. Log in to the network server and open the folder where Reflection is installed.
2. Start the Setup program. You must run Setup from the Setup folder beneath the Reflection folder on the network server. For example,

   ```
   <network drive>\<Reflection folder>\Setup\Rx2\Setup.exe
   ```

If you are configuring a workstation for an operating system that supports long file names and you include spaces in the file name, you must enclose the entire path and file name in quotes.

For example, a valid entry might be:

```
"F:\User Programs\Reflection\Setup\Rx2\Setup.exe"
```

3. Follow the Setup program's instructions. Configuring a workstation is similar to performing a single-user version installation (page 15), with the following exceptions:

   - Setup may ask you to specify the Reflection Local folder, where it will copy some system files locally, such as NFS components. Accept the default path proposed by Setup—\<Windows>\Reflection. (You will still specify a User folder: this folder should also be on a local drive.)
   - You will not have an opportunity to choose the components to install. This has already been done by your system administrator, who set up your Reflection product on the network. Setup configures your workstation to run the installed components from the network.

Other Multi-User Installation Options

If you are installing Reflection on multiple PCs or workstations, the Reflection Setup program provides these features to help you automate the installation process:

- **Automatic Installation**—Allows you to record your Setup options on a workstation in a special file called Silent.inf, and use the Silent.inf configuration when running Setup on other workstations.
- **Microsoft Systems Management Server (SMS) Support**—Provides a product-specific Package Definition File (PDF) for use with SMS, and includes the automatic installation option (Silent.inf) that conforms to unattended installation guidelines.

For information about how to use the Silent.inf file and the SMS support, look for *Automating Setup* in the index of the Setup help file.

Distributing a Multi-User Version from a Network

The procedure starting on page 15 explains how to install a single-user version of Reflection Suite for X to individual PCs using the master CD-ROM. An alternative installation procedure is to copy the disk images to a shared network drive, and have users run Setup from the network.

Use this procedure to put an image of the master CD on a network server:

1. Create a folder on the server for the Reflection software. For example:

   ```
   F:\Apps\Reflect
   ```

2. Create folders beneath the Reflection folder for the disk images listed on the Reflection CD. These disk images are located within the RX folder on your product CD. Create a folder for each disk name (Disk1, Disk2, and so on).
3. Copy the contents of the Disk 1 image to the Disk1 folder, the contents of the Disk 2 image to the Disk2 folder, and so on. Most of the files you are copying are compressed: they cannot be used until they are decompressed and copied to a target folder during execution of the Setup program.
4. From the PC workstation, run the Setup program from the folder. For example, if you copied the disk images to \Reflect on network drive F, then run this command from the Start menu:

   ```
   F:\Reflect\Disk1\Setup
   ```

5. Follow the procedure for installing Reflection for a single user, beginning on page 15.

   When Setup prompts you to define a destination path for the Reflection software, specify a local drive letter to perform a complete installation onto the PC. The default Reflection folder is \Program Files\Reflection.

Removing Reflection from Your PC

Setup copies an Uninstall program to the Reflection folder that allows you to remove the product easily. You can also use the Network Control Panel to remove Reflection LAT or NFS components without removing other components. If you have older Reflection network components that you want to remove, see the online help for details.

Run the Uninstall program to remove a local copy of Reflection or the local components that allow you to run a multi-user version from a network server.

To start the Uninstall program, start Control Panel and double-click the Add/Remove Programs icon. Then, on the Install/Uninstall tab, double-click the name of your Reflection product.

Follow the Uninstall program's instructions. You can have Setup record your network settings if you plan to install another Reflection network product and you would like to use the settings again. For information about Uninstall, click Help to view and print the online information.

Using Network Control Panel to Remove Components

Use the Network Control Panel to remove Reflection NFS Client and Reflection LAT without removing other components, such as network applications. This procedure does not remove files from your system, but modifies Windows Registry entries to disable the software.

To remove these network components, right-click the Network Neighborhood icon, then click Properties. Select the component (Windows NT users: LAT is listed on the Protocols tab, NFS Client is listed on the Services tab), then click Remove.

Troubleshooting Tips

If you encounter problems with the suite components, there are tools and resources you can use to find the cause of the problem and take corrective action. See the online help for information on these resources:

- To verify the choices you made during Setup, look at Setuplog.txt.
- To identify your system configuration, use the About Box.
- Server error and warnings that occur while running Reflection X can be captured in a user-specified log file.
- To diagnose PC-to-host interaction, use the Trace feature that is part of Reflection X, Reflection for UNIX and Digital, and Reflection for IBM.

- To test if your PC and other hosts on your network are communicating properly, use the Ping utility.
- To quickly and easily perform many troubleshooting operations with Reflection for UNIX and Digital, use the troubleshooting toolbar.
- To view information, warning, or error messages logged by the network applications, use the Network Event Viewer.

Reflection Networking Utilities: If you are a network user rather than a system administrator, it's possible that your system administrator did not give you access to some of these tools. For example, your Reflection or Reflection Utilities folder may not include the icons for Ping or Network Event Viewer. If you don't see these icons, see your system administrator for further assistance. ▲

Finding Additional Troubleshooting Help

WRQ provides numerous resources to help you troubleshoot on your own, including:

System Administrator Guides—These guides, available in electronic format on the Reflection CD, discuss topics for the person who must set up, maintain, and control the environment in which Reflection users work. (In Reflection X, information for the system administrator is in a help file that you can install a during Setup; the file name is Rxadmin.hlp.)

ReadMe Files—ReadMe files may contain late-breaking information about a suite component, additional troubleshooting tips to help you install and use a product, plus information about new features and enhancements.

To view the Reflection Suite for X ReadMe file: from the Windows Start menu, point to the Documents folder on your Reflection menu, click Documents, then open the ReadMe icon.

Technical Notes—For more extensive and specific troubleshooting information, see the Technical Notes published by WRQ. You can get the latest Technical Notes by fax, from the WRQ BBS, or from the WRQ World Wide Web site. See the front matter of this *User Guide* for information on using these services.

CHAPTER 3

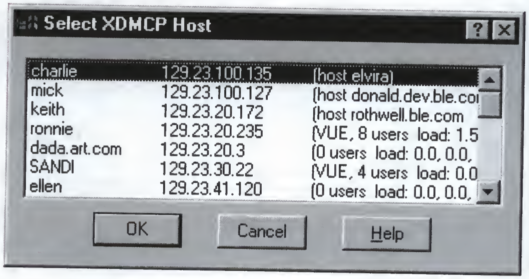
Starting Reflection X for the First Time

If you are using a network transport (TCP/IP or DECnet), remember to install and configure your network software before you try to start an X client with Reflection X.

To start Reflection X, click the Reflection X icon.

If your machine did not have an earlier version of Reflection X on it when you ran Setup, the following things happen when you start Reflection X for the first time:

- Reflection X offers to run the Performance Tuner, which ensures that the performance of Reflection X is optimized for your computer. The Performance Tuner takes just a minute or two. (You can run the Performance Tuner later—it's available on the Tools menu in Reflection X.)
- If you are using TCP/IP as a transport, Reflection X will issue an XDMCP Broadcast. If a response is received, the Select XDMCP Host dialog box appears, with a list of available hosts:



```
charlie        129.23.100.135   (host elvira)
mick           129.23.100.127   (host donald.dev.ble.co
keith          129.23.20.172    (host rothwell.ble.com
ronnie         129.23.20.235    (VUE, 8 users  load: 1.5
dada.art.com   129.23.20.3      (0 users  load: 0.0, 0.0,
SANDI          129.23.30.22     (VUE, 4 users  load: 0.0
ellen          129.23.41.120    (0 users  load: 0.0, 0.0,
```

You can select a host and start up X clients on that host right away. If you do, Reflection X will display the Select XDMCP Host dialog box the next time you start Reflection X. See pages 47–52 for information on starting XDMCP clients.

- If the XDMCP session is not successful, or if you cancel the Select XDMCP Host dialog box without selecting a host, Reflection X prompts, "Would you like to use the Client Wizard to create Reflection X client files now?" The Client Wizard connects to the host you specify, searches for a set of commonly used X clients, and lets you create a client file for each one you choose. If you click Cancel, you can run the Client Wizard later.

  The Client Wizard is an ideal way for users new to Reflection X to set up client connections for regular use. See pages 25–27 for information on using the Client Wizard.

  The Client Wizard prompt only appears the very first time you run Reflection X. Afterward, you can run the Client Wizard from the Windows desktop (it's in the Wizards folder) or click Client Wizard on the Tools menu in Reflection X.

- If you install Reflection X to a folder that contains an earlier 32-bit version, settings from the earlier version are automatically incorporated into the new version. But if you install to a different folder, Reflection X asks if you want to copy settings from the older version when you first run the new version.

  If you install Reflection X for Windows 95 and Windows NT over an earlier version of Reflection X for Windows 3.1, Setup automatically converts your initialization settings (in Rx.ini) to the Windows Registry. Rx.ini is no longer used as of version 6.0 of Reflection X for Windows 95 and Windows NT.

Next, you'll see the Reflection X application window. For information on using the application window, see "Using Client Files" (pages 29–46).

CHAPTER 4

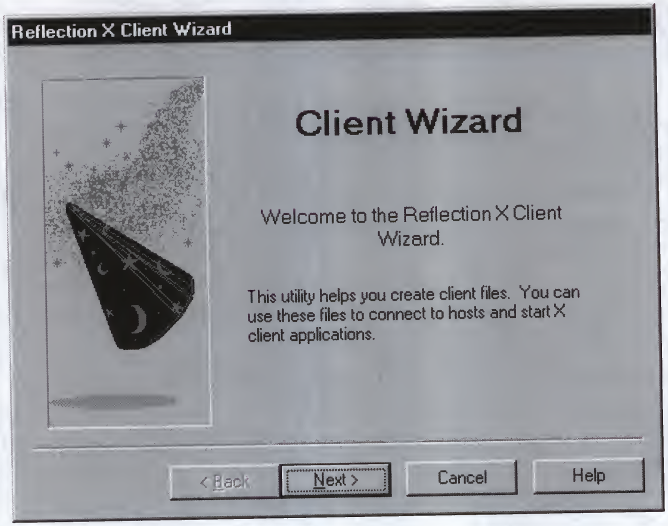
The Client Wizard

The Reflection X Client Wizard helps you create Reflection X client files. You specify a host, and the Client Wizard connects to it, searches for a set of commonly used applications, and lets you create a client file for any application you choose. The client files you create are added to the connection list in Reflection X. You can also add them to the Windows Start menu or save them as desktop shortcuts.

In order to use the Client Wizard, you must have Reflection for UNIX and Digital (formerly called “Reflection 2”) version 5.2 or higher installed. Reflection for UNIX and Digital is provided with Reflection X and is the connectivity software that handles the interactions between the Wizard and host computers. The Client Wizard can also use Reflection for ReGIS Graphics (formerly called “Reflection 4”) version 5.2 or higher—this product is similar, but with additional host graphics support. It is available separately.

Setup creates a Client Wizard icon in the Wizards folder. You can click this icon to run the Client Wizard, or you can click Client Wizard on the Tools menu in the Reflection X application window.

This is the screen you see when you start the Client Wizard:



Reflection X Client Wizard

Client Wizard

Welcome to the Reflection X Client Wizard.

This utility helps you create client files. You can use these files to connect to hosts and start X client applications.

Click Next to get started, and respond to the prompts you see. For clarifications and explanations of the prompts, click Help in any Client Wizard screen.

You cannot use the Client Wizard to establish XDMCP connections—see "Making an XDMCP Connection" on page 47.

You'll need to know the following to use the Client Wizard:

The name of a host to connect to
Click the Host list box to see what hosts are available—the list grows as you connect to hosts or if you do an XDMCP broadcast. Host names are stored in a file named Rxhosts.ini, in your User directory. Your system administrator may have created a customized Rxhosts.ini for you.

If you don't see any hosts listed, you can type in the name of a host (if your computer is set up to use a domain name server), its DECnet node name or number, or its network (IP) address (such as 111.222.33.44).

The type of the host (such as SCO UNIX host or DEC VMS host)
The Client Wizard provides a list of host types. (Select Generic UNIX Host if you're not sure what type your host is.)

A valid user name on the host
If you don't have your own user name on the host, consult your system manager.

The password for the user account
If you have no password on the host, leave the **Password** box blank. If you type your name or password incorrectly, Reflection X will prompt you to type it again.

An X client (application) to run on the host
The Client Wizard provides a list of commonly used X clients. If the X client you want to run isn't in the list, select *(custom)*, and type the command that starts the client (including the complete path) in the **Command** box. Also type any parameters (for example, `-display %IP#%`) in the **Parameters** box. See "Command" on page 38 for more information.

If you don't know what host to connect to, or if you can't connect to your host, or if you don't know what account to use, what the password is, or what client to run on the host, contact your system administrator.

You can use the Client Wizard to create icons for particular clients. Clicking the icon automatically logs you on to the host and runs the client.

One of the advantages of the Client Wizard is that it remembers information you provide. For example, the Client Wizard remembers the names of hosts you provide, the type of each one, and what clients you ran. So each time you use the Client Wizard it learns more about the hosts and X clients in your environment.

The Connection Wizard

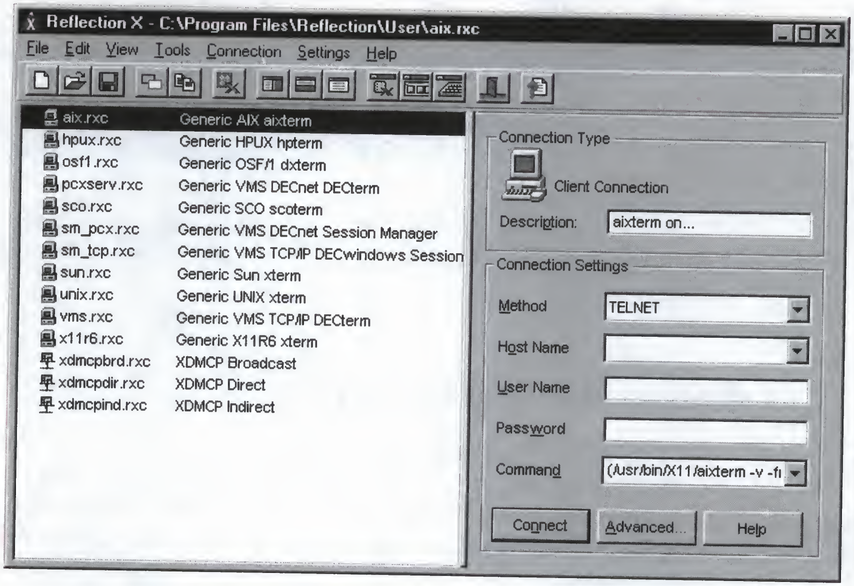
For establishing host sessions (as opposed to starting X clients), use the Connection Wizard. It's available in both Reflection for UNIX and Digital and Reflection for IBM. To get to the wizard, click New Session on the File menu, then select Connection Wizard. Using the wizard is described on page 101.

CHAPTER 5

Using Client Files

Reflection X client files are ASCII text files containing the configuration information you need to connect to hosts and start clients.

You view and edit client files in the application window:



Reflection X - C:\Program Files\Reflection\User\aix.rxc

aix.rxc	Generic AIX aixterm
hpux.rxc	Generic HPUX hpterm
osf1.rxc	Generic OSF/1 dxterm
pcxserv.rxc	Generic VMS DECnet DECterm
sco.rxc	Generic SCO scoterm
sm_pcx.rxc	Generic VMS DECnet Session Manager
sm_tcp.rxc	Generic VMS TCP/IP DECwindows Session
sun.rxc	Generic Sun xterm
unix.rxc	Generic UNIX xterm
vms.rxc	Generic VMS TCP/IP DECterm
x11r6.rxc	Generic X11R6 xterm
xdmcpbrd.rxc	XDMCP Broadcast
xdmcpdir.rxc	XDMCP Direct
xdmcpind.rxc	XDMCP Indirect

Description: aixterm on...

Method: TELNET

Host Name:

User Name:

Password:

Command: (/usr/bin/X11/aixterm -v -f

This is the screen you see when you start Reflection X. The left side of the application window lists the available client files. Even for a new installation of Reflection X there are quite a few client files listed—these are "generic" client files that contain information appropriate for a particular type of host. For example, the first item in the list is Aix.rxc, a generic aixterm client file. It contains all relevant information for starting an aix terminal client except a host name, a user name, and a password. If you double-click on Aix.rxc, Reflection X prompts you for these three pieces of information.

There are three types of client files listed in the left half of the application window, each associated with a different icon:

Standard client files establish a connection with a networked host and issue a UNIX or OpenVMS command to launch one or more X clients. You can create a client file using the Client Wizard (Reflection X for Windows 95 and Windows NT—Intel only), or you can create or edit a client file in the application window.

XDMCP client files start an XDM (X Display Manager) client on a networked host. The host controls how the X environment is configured. See "Making an XDMCP Connection" on page 47.

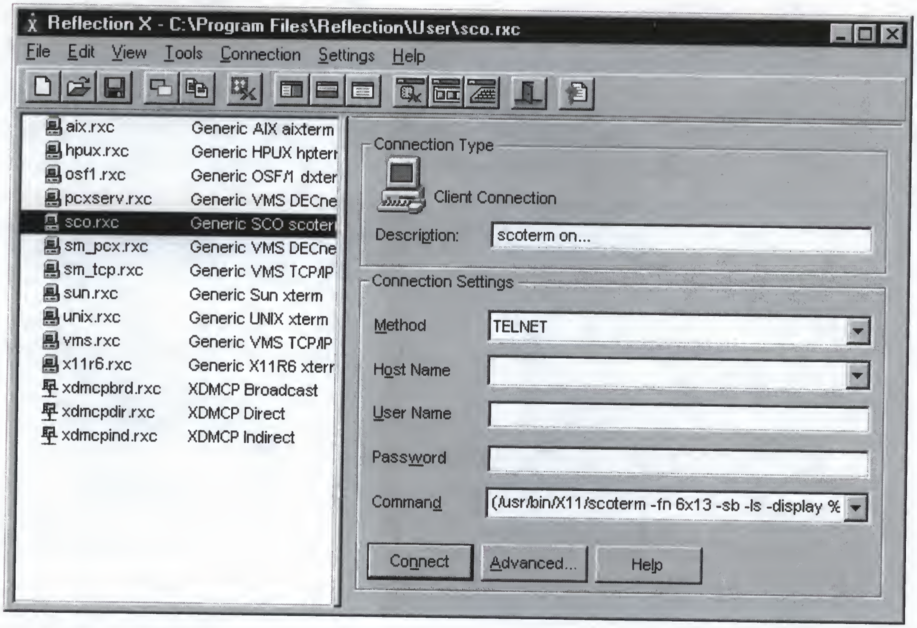
Serial client files establish a connection with a host over a serial line (for example, using a modem). See "Making a Serial Connection" on page 69.

By default, client files have an .rxc extension and are stored in the User directory. You can display client files in a different directory by opening a client file in that directory—click Open on the File menu to do this.

Creating or Modifying a Client File

Use the right side of the application window to create or edit client files. Start by clicking one of the existing client files. (The currently selected client file is identified in the title bar.) All of the information contained in the current client file is displayed in the Connection Type and Connection Settings areas on the right side of the application window.

For example, if you click Sco.rxc (the generic SCO UNIX client file), this is what the application window looks like:


Reflection X - C:\Program Files\Reflection\User\sco.rxc
File
Edit
View
Tools
Connection
Settings
Help
Connection Type
Client Connection
Connection Settings
Connect
Advanced...
Help

aix.rxc	Generic AIX aixterm
hpux.rxc	Generic HPUX hpterr
osf1.rxc	Generic OSF/1 dxter
pcxserv.rxc	Generic VMS DECne
sco.rxc	Generic SCO scoter
sm_pcx.rxc	Generic VMS DECne
sm_tcp.rxc	Generic VMS TCP/IP
sun.rxc	Generic Sun xterm
unix.rxc	Generic UNIX xterm
vms.rxc	Generic VMS TCP/IP
x11r6.rxc	Generic X11R6 xterr
xdmcpbrd.rxc	XDMCP Broadcast
xdmcpdir.rxc	XDMCP Direct
xdmcpind.rxc	XDMCP Indirect

Description: scoterm on...

Method: TELNET

Host Name:

User Name:

Password:

Command: (/usr/bin/X11/scoterm -fn 6x13 -sb -ls -display %

"Client Connection Settings," starting on page 34, discusses each of the areas on the right side of the screen, and what values you can enter or select. For now, just remember that once you have all the values in place, click Save As on the File menu to create a new client file. (Don't click Save, or you'll overwrite the sample file you started with.)

Running a Client File

By running a client file, you run an X client application. There are different ways to do this.

Starting a Client from the Connection List

Double-click a client file in the connection list, or select a file name and then click the Connect button. This is a good way to run a client file for the first time, or to troubleshoot a problem. If the client file is missing necessary information for starting an X client—like a host name, a user name, or a password—Reflection X prompts for these items.

By default, the connection list displays the client files in your User directory.

Creating a Toolbar Button for a Client File

If you plan to run a particular X client regularly, you can associate a client file with a button on the toolbar, and then run the file by clicking the button.

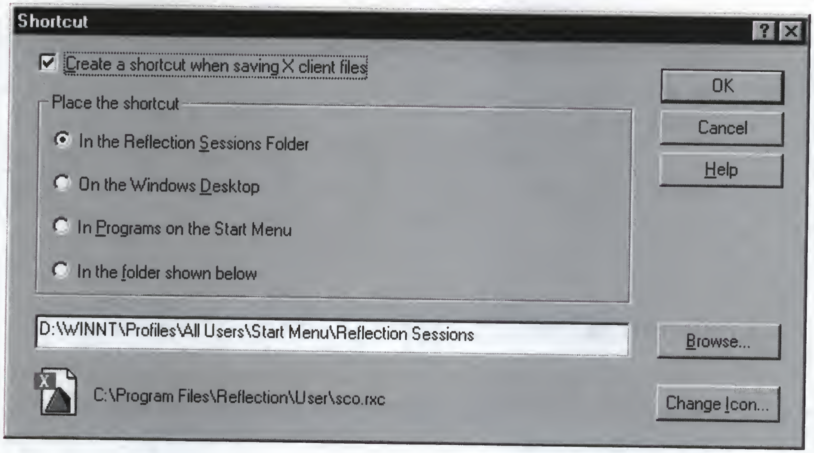
Follow these steps:

1. Click Toolbar on the Settings menu to open the Toolbar Settings dialog box.
2. Click the Customize tab.
3. Click New Button.
4. Select a client file from the list.
5. Provide additional information, as needed: Label Text, ToolTip Text, and/or Picture.
6. Click OK to close the Toolbar Settings dialog box.

Creating a Shortcut for an X Client File

You can associate a client file with a shortcut and then start the client by double-clicking its icon.

To create a shortcut, select a client file in the connection list and click Create Shortcut on the File menu.



Shortcut

☑ Create a shortcut when saving X client files

Place the shortcut

- ● In the Reflection Sessions Folder
- ○ On the Windows Desktop
- ○ In Programs on the Start Menu
- ○ In the folder shown below

D:\WINNT\Profiles\All Users\Start Menu\Reflection Sessions

C:\Program Files\Reflection\User\sco.rxc

Select a location and icon for the client file. The Description for the client file, as specified in the Connection Settings, is what appears under the icon you choose. See page 34.

Once the client file is associated with a shortcut, you can run it from the Windows desktop or the Reflection Sessions folder by clicking its icon. If Reflection X is not running, the shortcut first starts Reflection X, then runs the X client.

Running a Client File When You Start Reflection X

You can have a client file run immediately when Reflection X starts. Select a client file from the list (single-click on it), and click Use <client file> at Startup on the Connection menu. The selected client file runs whenever you start Reflection X. You can toggle this choice off (clear the check mark) using the same steps.

Minimizing the Application Window on Connect

If you want the application window to close once a connection is made, open the Connection menu and click Minimize on Use. If you want to keep the application window open after you start a client (to start other clients, for example), toggle this choice off (remove the check mark) by clicking the command again. This setting applies to all clients (not just the highlighted client file).

Client Connection Settings

This section describes the various settings that make up a client file. You create or modify a client file in the right half of the application window. Also see "Advanced Client Connection Settings" starting on page 40.

Description

By default, a client file description is generated automatically, based on the client name (taken from the **Command** box), the **Host Name**, and the **Method**. For example, if the command starts the xclock client, the **Host Name** is pickwick, and the **Method** is Telnet, the **Description** reads "xclock (pickwick via TELNET)." You can also enter your own description. If you do not want the **Description** to change automatically, add the line `AutoDescription=0` to the client (.rxc) file.

For Reflection Xpress, the default **Description** reads simply "Serial Connection": it is not automatically filled in (the name of the host is stored in your Settings.r?w file). See "Making a Serial Connection" on page 69 for more information.

The Description is used:

- In the client list.
- With the X client icon on the Windows desktop, when you save the client file as an icon (by clicking Create Shortcut on the File menu).
- In the title bar of the status box you see while you are establishing a connection (when Host Response is selected on the Connection menu).
- In the title bar of the X client (when the `-name %T%` parameter is included in the Command).

Method

Identifies the method with which to start an X client. "Method," in this context, is the networking protocol your PC uses to communicate with the host. The method you choose depends on what transports are available, your host computer, and your preferences. Your system administrator can recommend which method to use in your environment, or you can refer to the sample files. (See "Sample Reflection X Client Files" on page 45.)

TCP/IP Transport

These four methods are available if you are using TCP/IP as your transport:

TELNET	The TELNET method uses the Telnet protocol to log in to the host on the network and automatically enters your password and command. The command usually runs an X client.
REXEC	With this method, Reflection X starts a program on the host and the program's output is normally sent to Reflection X. A valid user name, password, and command (specifying the X client and the X server on which its output should appear) are required. Because of the password requirement, the REXEC method is secure enough for most environments. The REXEC method requires specifying your PC's host name and IP address in the .rhosts file (in your home directory) or in /etc/hosts. See your UNIX host documentation for more information.

RSH	The RSH (remote shell) method is similar to REXEC, except that it does not require a password. You must specify a user name, host, and command to run; the command must be an X client. The RSH method requires that you set up either the .rhosts file (in your home directory on the host) or in /etc/hosts. See your UNIX host documentation for information about RSH. RSH requires that the login name used to log in at the desktop (the local user name) and the login name used to specify the account desired on the host (the remote user name) both be permitted by the configuration of the .rhosts file (and/or the /etc/hosts file). This prevents person A from logging in at person B's NT desktop and then using person A's host account over RSH. Windows 95 does not require a login at the desktop; the Reflection X user name becomes both the local user name and the remote user name, to assure that RSH on the host accepts commands.
RLOGIN	The RLOGIN method uses the rlogin protocol to log in to the host on the network and automatically enters your user name and password. The command usually runs an X client.

All of these methods produce similar results during startup, but REXEC and RSH are faster than RLOGIN or TELNET. TELNET is recommended for troubleshooting client startup.

DECnet Transport

The following method is available if you are using DECnet as your transport:

PCX$SERVER	The OpenVMS script file Pcx$server.com can be defined as a DECnet object and used to start clients.

Host Name

Identifies the name or IP address of the X client host machine. If you have connected to a particular host before, Reflection X automatically fills in the corresponding user name and password (if the **Password** option is not dimmed). The **Host Name** list box shows all of the hosts to which you have made a connection (the names are stored in Rxhosts.ini).

What you enter in the **Host Name** box depends on whether you are using TCP/IP or DECnet as your transport:

TCP/IP Transport

If you are using a domain name server for address resolution, enter the host name or an Internet node name or address.

DECnet Transport

Enter a DECnet node name or number in the Host Name box. If you select PCX$SERVER, the host name is interpreted as a DECnet node name.

User Name

Specifies a user name for logging on to the host.

Reflection X records the combinations of known user names and host names in client files. These names are stored in Rxhosts.ini, in your User directory. If there is only one user name associated with a host, that user name (and the corresponding password) are automatically entered in the Connection Settings when you type the host name.

For more information about Rxhosts.ini, see the System Administrator online help.

Password

Specifies a password for logging on to the host. During Setup, you were asked whether you wanted to avoid having to respond to a password prompt every time you attempted a host connection:

- If you selected the **Save Passwords?** check box, passwords are stored (in encrypted form) in client files. When you start a client, you are not prompted for your password, although you will still have to enter your user name and password at the login screen when you start some X clients, such as the DECwindows Session Manager or HP VUE.
- If you cleared the **Save Passwords?** check box, you will be prompted for a host password every time you start up a client. In this case, the **Password** box in the Reflection X Connection Settings area is unavailable.

The only way to change this setting is to run Setup again.

If the **Password** box is not available, type in your password. An asterisk appears for each character you type.

Command

The entry in this text box is a command that starts one or more X clients.

What you type in this text box cannot exceed 256 characters. The host on which your X client resides may have its own limitation regarding command length. The UNIX shell, for instance, typically has a 256-character limit; for longer commands, use the symbol for newline ("`\n`"). You can also send multiple commands to a host using the Advanced Client Connection Settings dialog box (page 40).

The sample client files provided with Reflection X illustrate different types of commands that apply to different host systems. In Unix.rxc, the entry for **Command** tries to start an xterm (which is usually located in the /usr/bin/X11 directory) and sets the display to your computer's IP address (the IP address and display number of your computer are automatically substituted for `%IP#%`):

```
/usr/bin/X11/xterm -fn 6x13 -sb -ls -d %IP#% -name %T% &
```

To start up DECwindows on an OpenVMS host using the PCX$SERVER method, the entry in the **Command** box might look like this:

```
%DN%,decw$terminal
```

In this example, %DN% is automatically replaced with your DECnet node ID.

The **Command** field retains the last ten commands used in Connection Settings (click the arrow to the right of the text box). For more information about starting clients on UNIX hosts, and an explanation of command syntax, see "Connecting to UNIX Hosts" on page 53. For information about starting clients on OpenVMS hosts, see "Connecting to OpenVMS Hosts" on page 59.

Connect

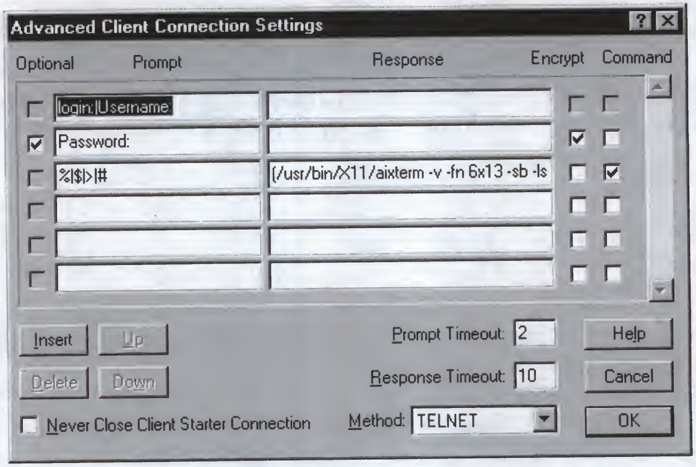
Click Connect to establish a connection (according to the specified **Method**), log in (using the **Host Name**, **User Name**, **Password**, and other connection settings), and issue your command.

Depending on the speed of your systems and network, it may take some time before the client window appears. If Reflection X displays the Enter Response dialog box after you click Connect, enter an appropriate response (for example, a new password) and click Send. If the dialog box appears regularly or at a time when you don't expect it, you can change the prompts or timeouts in the Advanced Client Connection Settings dialog box.

If you see an error message when you try to start a client, click Log File on the Tools menu to see what error messages, if any, were logged by the startup process. The status and error messages in Reflection X are listed by number in the online help.

Advanced Client Connection Settings

In addition to the **Host Name**, **User Name**, **Password**, and **Command** settings, there are several other client settings. You can see these options by clicking the Advanced button in the **Connection Settings** area:



Optional	Prompt	Response	Encrypt	Command
☐	login:|Username:		☐	☐
☑	Password:		☑	☐
☐	%|$|>|#	(/usr/bin/X11/aixterm -v -fn 6x13 -sb -ls	☐	☑
☐			☐	☐
☐			☐	☐
☐			☐	☐

Prompt Timeout: 2
Response Timeout: 10
☐ Never Close Client Starter Connection
Method: TELNET

(For information on Advanced XDMCP settings, see page 50.)

Each row in this dialog box represents one interaction with the host. The rows are processed in order one at a time. Reflection X first checks the host for the prompt in the top line, sends the first response, then looks for the prompt in the second line, and so on.

The information you enter in this dialog box is added to the client file—see the online help for information on deciphering a login sequence as it appears in a client file. But editing client files directly is not necessary—you can do all your work in the Advanced Client Connection Settings dialog box.

Optional

Use this check box to specify whether Reflection X is to wait for the specified prompt. If the check box is selected and the host does not display the specified prompt, Reflection X skips to the next line of the sequence. If the box is cleared and the host does not display the prompt, Reflection X waits until the timeout period has elapsed and then displays a dialog box in which you can enter a response during client startup.

Prompt

This is the expected host prompt. A prompt string does not have to be complete: enter as much of the end of the string as you need in order to differentiate it from the other prompts that Reflection X will see. To specify multiple possible prompts at a particular point in the login sequence, separate the alternatives with a vertical bar (|).

Specifying the prompt displayed by the host before Reflection X issues the command makes the login process go faster, and also causes Reflection X to display the Enter Response dialog box if the command prompt doesn't appear (for example, if your password has expired).

If your host displays a different prompt each time you log in (for example, if the prompt shows the current date), clear the contents of the **Prompt** box for the relevant commands. In this case, Reflection X waits for any string and then issues the command.

If the host displays a prompt that does not appear in this dialog box, another dialog box comes up after the timeout period has elapsed. See "Interactive Login" on page 45.

Response

Specifies the response to send to the host when the corresponding prompt is detected. A carriage return is automatically appended to the prompt response you enter. Use "\r" on UNIX hosts and "\n" on OpenVMS hosts to indicate a carriage return alone. The response can be a command or the answer to a prompt, such as `termtype=(hp)`.

Encrypt

Specifies whether the response should be encrypted. This option is selected by default only for the Password response. When **Encrypt** is selected, the response appears as a series of asterisks in the Advanced Client Connection Settings dialog box, and is encrypted in the client file that contains the sequence.

Command

Specifies whether the response is an X client startup command. It is necessary to specify which responses are commands when you use the REXEC or RSH login methods. These methods send single commands, packaged with the user name and (if required) password, to the host. If you have a Reflection X client file that uses multiple command lines to start multiple X clients, Reflection X has to create individual packets containing the user name and password with each command. By specifying whether a given line contains a command, you make it possible for Reflection X to construct these packets.

If you must build a multiple-response script to start a single X client (as in the case of an application that prompts for various responses before it starts the client), you must use the RLOGIN or TELNET method instead of REXEC or RSH.

Method

The **Method** list box contains the same options available in the Reflection X application window; these are described on pages 35–36.

Prompt Timeout

Use this text box to set the number of seconds for Reflection X to wait before determining that a response from the host is a prompt (and not, for example, informational text). If this setting is too low, Reflection X may not wait long enough for a prompt and send the command prematurely. If the setting is too high, the Enter Response dialog box may appear at an inappropriate time (for example, if the host has displayed a prompt specified in the **Prompts** box, but Reflection X hasn't yet responded to it).

Values:	1–60 (seconds)
Default:	2

Response Timeout

Use this text box to set the number of seconds for Reflection X to wait before the host responds to what it receives. If the setting is too high, the Enter Response dialog box may appear at an inappropriate time (for example, while the host is responding to a user name or password and hasn't yet displayed the next prompt).

Values:	1–60 (seconds)
Default:	10

Never Close Client Starter Connection

To minimize open network connections, Reflection X closes the host connection after sending the command to start a X client. If closing the Host Response dialog box makes you also lose your host connection, or if (when the Host Response command is not checked on the Connection menu) the client doesn't start up, select this check box to force the client starter to maintain the connection.

The preferred fix for this problem is to follow the troubleshooting tips in the online help—search for *UNIX host, troubleshooting connections*.

Timeouts and Rxhosts.ini

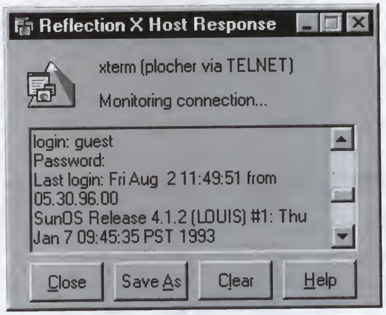
Reflection X keeps track of the combinations of user names and host names you use to establish connections, and the names of hosts that have responded to an XDMCP broadcast. These names are stored in the file Rxhosts.ini, in your User directory.

The timeout settings associated with each host name/user name pair are stored in this file as well. If there is only one user name associated with a host, the corresponding timeouts are set when you type the host name. If there are multiple users associated with a host, the timeouts are set when you type the host name and the user name.

For more information about Rxhosts.ini, see the System Administrator online help.

Showing the Host Response

As you run a client file and make a host connection, Reflection X can display a record of its interactions with the host. Click Host Response on the Connection menu to open the Reflection X Host Response dialog box.



```
login: guest
Password:
Last login: Fri Aug  2 11:49:51 from
05.30.96.00
SunOS Release 4.1.2 (LOUIS) #1: Thu
Jan 7 09:45:35 PST 1993
```

This dialog box appears as soon as you attempt to connect to an X client, and remains in view until you close it. It shows both connection status and information sent by the host, such as host prompts, job and process numbers, and error messages. The Host Response dialog box stores this information for all of the client files you run during a Reflection X session (the status information for each file is separated by a dashed line). You can save the contents of the status box to a file (the default file name is Response.txt, in the User directory).

When the Host Response command is not checked on the Connection menu, a smaller box appears during a connection attempt. It shows the progress of the connection ("Waiting for Username:... ," "Waiting for Password:..."), but not the response from the host. This smaller box closes automatically once a connection is made; how long it stays up once the X client starts is governed by the Response Timeout setting, described on page 43.

Click Cancel to stop a connection attempt. If an unexpected prompt appears, wait for the prompt to time out, and then enter the appropriate response in the Enter Response dialog box. See the Troubleshooting section in the online help, for more information.

The setting you choose for Host Response applies to all of the X clients you start (not just the highlighted connection file).

Interactive Login

When you run a client file, Reflection X looks for the specified prompts from the host and supplies the specified responses. Reflection X queries the user (opens a dialog box in which you can enter a response) in the following cases:

- If the host provides an *unexpected* prompt (for example, a "New password:" prompt that appears when your password has expired)
- If Reflection X detects an optional prompt for which no response was specified in the Advanced Client Connection Settings dialog box

See the online help for a sample interactive login session.

Sample Reflection X Client Files

Reflection X comes with a number of files with the extension .rxc. These are client files tailored for different host environments. (There are three XDMCP files, which correspond to the XDMCP methods. They are described on pages 48-49.)

UNIX Sample Client Files

By default, these files are located in your User directory. For more information about starting clients on UNIX machines, see pages 53–57.

Client File	Type of Host	Client Command
Aix.rxc	RISCsystem/6000 host	/usr/bin/X11/aixterm
Hpux.rxc	HP UNIX host	/usr/bin/X11/hpterm
Osf1.rxc	DEC OSF/1 host	/usr/bin/X11/dxterm
Sco.rxc	SCO UNIX host	/usr/bin/X11/scoterm
Sun.rxc	Sun host	/usr/openwin/bin/xterm
Unix.rxc	UNIX host with older X11	/usr/bin/X11/xterm
X11r6.rxc	UNIX host with X11R6	/usr/X11R6/bin/xterm

In these files, Host Response is enabled and **Method** is set to TELNET: this lets you see the interaction between the X server and the host. If you're able to connect to your host and run a client, try switching to a faster method next time, such as REXEC or RSH.

OpenVMS Sample Client Files

These sample client files are in two locations—some are in the User directory, and the others are in the X\Vms directory. If you are running Reflection X from a server, this directory is on the server, not on your local hard disk—you can copy any Reflection X client files you need to your local User directory.

For general information about starting clients on OpenVMS machines, see page 59.

Sample Files for Starting a DECterm

Client File	Transport	Sample Client Startup
Vms.rxc	TCP/IP	Page 65
Pcxtcp.rxc	TCP/IP	Page 61
Pcxserv.rxc	DECnet	Page 68
Vmsdnet.rxc	DECnet	—

Starting DECWindows Session Manager

Client File	Transport	Sample Client Startup
Smpcxtcp.rxc	TCP/IP	Page 63
Sm_tcp.rxc	TCP/IP	Page 63
Sm_pcx.rxc	DECnet	Page 67
Sm_dnet.rxc	DECnet	Page 67

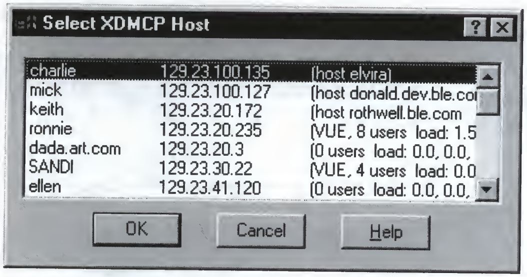
In the client files that use TCP/IP, Host Response is enabled and the **Method** is set to TELNET: this lets you see the interaction between the X server and the host. If you're able to connect to your host and run a client, try switching to a faster method next time, such as REXEC or RSH.

CHAPTER 6

Making an XDMCP Connection

The X Display Manager Control Protocol (XDMCP) allows Reflection X to communicate with an X Display Manager running on a particular host machine. Under XDMCP, the host controls how the X environment is configured and what clients are run. If your host supports XDMCP, this is the simplest type of connection to make. XDMCP is available only if you are using TCP/IP as a transport.

If you have just installed Reflection X for the first time (that is, if you did not install it over a previous version), Reflection X, when you first run it, sends a network broadcast to determine which hosts are configured to run XDM. If any are found, the Select XDMCP Host dialog box appears, showing a list of available hosts:



charlie	129.23.100.135	(host elvira)
mick	129.23.100.127	(host donald.dev.ble.co
keith	129.23.20.172	(host rothwell.ble.com
ronnie	129.23.20.235	(VUE, 8 users load: 1.5
dada.art.com	129.23.20.3	(0 users load: 0.0, 0.0,
SANDI	129.23.30.22	(VUE, 4 users load: 0.0
ellen	129.23.41.120	(0 users load: 0.0, 0.0,

To connect to a host, double-click it in the list. Next, you should see the login dialog box for the host Display Manager.

If, when you first run Reflection X, you connect using XDMCP Broadcast, Reflection X will automatically configure itself to use the same connection method in the future—when you start Reflection, it will send an XDMCP broadcast and display the results. (The XDMCP Broadcast method is described in more detail on page 48).

XDMCP Client Connection Settings

You can start an XDMCP session by double-clicking one of the default XDMCP client files in the connection list (one for each XDMCP method—see below), or by creating a new XDMCP client file. For more information about working with client files, see "Using Client Files," starting on page 29.

The following settings describe selected connection settings as they apply to XDMCP client files. (These are the values that appear in the right half of the Reflection X application window when an XDMCP client file is selected.) For general information about connection settings, see page 34.

Method

Reflection X supports the three XDMCP methods:

Broadcast	With the Broadcast method, the X server performs a reset and then sends a request to all hosts on the network. (If the **Always Maintain One XDMCP Session** check box is selected in the Advanced XDMCP Settings dialog box, a request is also sent whenever the server is reset.) Any display manager running on a networked host that is able to support XDMCP responds. If the **Select First Responding XDMCP Host** check box is cleared in the Advanced XDMCP Settings dialog box (the default), you'll see a list of available hosts in the Select XDMCP Host dialog box: select one or choose Cancel. If the **Select First Responding XDMCP Host** check box is selected, an XDMCP session is begun with the first network host that responds to the broadcast. Hosts not configured to service the request ignore the broadcast.
Direct	With the Direct method, the X server performs a reset and then sends a request to the X display manager program running on the specified host. You must enter the host's name or IP address in the **Host Name** text box.

Indirect	With the Indirect method, the X server performs a reset and then sends a request to a single host. This host may do one of the following, depending on how it is configured: provide a dialog box listing available hosts, automatically pass the request to another host, or handle the XDM request itself. You must enter the initial host's name or IP address in the **Host Name** text box. With the Indirect method, the **Select First Responding XDMCP Host** option in the Advanced XDMCP Settings dialog box is selected by default. The X Display Manager (XDM) on your host may be set up to respond to Indirect requests with a "chooser box," listing available hosts: select one or choose Cancel. The option **Always Maintain One XDMCP Session** should also be selected when the method is Indirect. If the initial host is a SCO UNIX machine, the X server may do a series of resets. To prevent this, make sure that **Always Maintain One XDMCP Session** is cleared in the Advanced XDMCP Settings dialog box.

Host Name

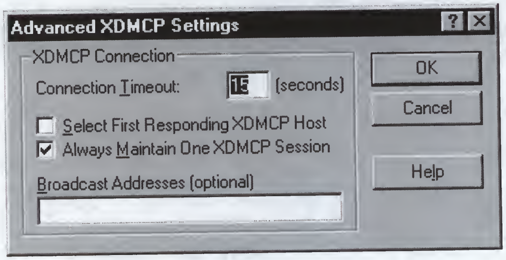
This item is unavailable when the **Method** is set to Broadcast.

Enter a host name or IP address in the **Host Name** box in the Reflection X application window. When you run a client file with Direct selected as the method, Reflection X sends a request to start XDM on the specified host. With Indirect selected, Reflection X sends a request to the specified host with the expectation that the request will be forwarded to a number of secondary display managers on different hosts. The initial host (also known as the primary display) may also accept the request.

If you are using a domain name server for address resolution, you will not see a list of host names: just enter the host name. You can also enter the host IP address.

Advanced XDMCP Settings

Click Advanced to display the Advanced XDMCP Settings dialog box:



Connection Timeout: 15 (seconds)

☐ Select First Responding XDMCP Host

☑ Always Maintain One XDMCP Session

Broadcast Addresses (optional)

Connection Timeout

Use this option to set the maximum number of seconds for which Reflection X will attempt to make an XDMCP connection. This number is rounded up to the nearest multiple of 15.

Default: 15

Select First Responding XDMCP Host

This option is available only when the XDMCP **Method** is set to Broadcast or Indirect. When it's selected, Reflection X automatically establishes a connection with the first responding display manager. If this option is cleared, the Select XDMCP Host dialog box is displayed.

Default: Cleared (**Method** is Broadcast)
Selected (**Method** is Indirect)

Always Maintain One XDMCP Session

When this check box is selected, a new XDMCP session is started as soon as the last X client is closed and the server is reset. **Always Maintain One XDMCP Session** is unavailable if **Disable Server Reset** (a Server setting—see the online help) is selected.

A change to this setting only affects the current client file, not all XDMCP connections. Changes go into effect when you click Connect, and are written to the client file when you save it. If you want to set this option for just the active session, select or clear **Always Maintain One XDMCP Session** on the Connection menu.

Default: Cleared

Broadcast Addresses (Optional)

By default, Reflection X allows an XDMCP broadcast to reach all the subnets on a network. A default mask is generated based on the IP network class.

If routers on your network are configured to pass specific subnet broadcasts but not a universal broadcast, entering a value here may allow the broadcast to reach more subnets. If you have multiple subnets and you want an XDMCP broadcast to reach all of them, specify multiple IP addresses in this text box (separating the entries with a comma or space). Also see the troubleshooting tips in the online help.

Connect

Click Connect to establish a connection. You can also establish a connection by double-clicking an XDMCP file in the connection list. (If any X clients are running, you are prompted to allow an X server reset, closing the clients.)

Suggested Window Manager Settings for XDMCP

There are a few Window Manager Settings that are relevant for the XDMCP user. (Click Window Manager on the Settings menu.)

Window Mode

Either setting—Microsoft Windows Desktop or X Terminal Desktop—is appropriate, though X Terminal Desktop is recommended, since it lets you set your **Default Local Window Manager** to None.

Default Local Window Manager

If XDMCP is the primary way you connect to hosts, it's best to set your **Default Local Window Manager** to None. Most XDMCP hosts are set up to handle window management, and a local window manager running isn't necessary.

Reflection X can run a remote window manager on the host even when you have a default local window manager configured, provided the **Allow Remote Window Manager** check box is selected.

Allow Remote Window Manager

This check box should always be selected if you're using XDMCP.

Focus Follows Mouse

If your **Window Mode** is set to Microsoft Windows Desktop, you may want to select **Focus Follows Mouse** if your XDM environment includes a remote window manager that has a focus policy whereby the active window is the one the pointer is touching.

CHAPTER 7

Connecting to UNIX Hosts

This chapter discusses client connection settings as they apply to UNIX hosts and illustrates how to start an xterm on a UNIX host, with considerations for different types of UNIX shells.

Reflection X Settings for UNIX Hosts

Before you start an X client on a UNIX host, check the following Reflection X settings. (Click Settings on the Reflection X menu bar to see the various settings categories.)

Font Path – (Fonts Settings)

Your font path should include at least miscellaneous fonts (misc) and the 75 dpi or 100 dpi fonts, depending on the resolution of your display. You may want to install additional fonts, depending on your host. For an RS6000 session, for example, you should also install the IBM fonts, or for an HP UNIX session, the HP fonts. The font path is searched in the order you specify, so if you are primarily running X clients on a certain type of host, put the corresponding font set at the beginning of your font path to speed up Reflection X.

If you need to add more font sets to your font path, do one of the following:

- Run the Setup program again and select the font sets you want.
- From the Fonts directory on the Reflection X CD-ROM, copy the directories that contain the fonts you want. Make sure any directories you copy fonts to are on your font path.

Color Model (Visual) – (Color Settings)

If your graphics card is set up for 65 thousand or more colors, the **Color Model** setting is TrueColor. If your graphics card can display a maximum of 256 colors, this option should be set to PseudoColor because this is the most versatile setting. It lets the X clients you run define and select the maximum number of colors supported by the display. If this doesn't work, try StaticColor.

Virtual Size – (Display Settings)

If you are using a lower resolution display than your host applications or environment require, you may want to have a screen that exceeds the size of your display. Set **Window Mode** (in the Window Manager settings) to X Terminal Desktop, then enter the dimensions of the screen in pixels (width x height) in the **Virtual Size** area. Try a setting of 1024 × 768 pixels; you can change it later. If you leave **Virtual Size** at its default value (0 × 0), the actual display size of your computer is used.

Window Panning – (Panning Settings)

If this option is selected, you can use the mouse to move parts of a large window into view. Otherwise, in X Terminal Desktop mode, you'll see scroll bars at the right and bottom edges of your display when an image is too large to display on your screen. This is relevant when **Virtual Size** (see above) is set to a size larger than your screen.

Host Keyboard – (Keyboard Settings)

You can select a keyboard mapping for a DEC, IBM, SCO, HP, or Sun host, or specify Generic, the default.

Starting an xterm

The following is a typical entry that could be used in the **Command** box to start an xterm on a UNIX host:

```
(/usr/bin/X11/xterm -v -fn 6x13 -sb -ls -d %IP#% -name %T% &)
```

The elements of this sample command are:

`(parentheses)`	Placing parentheses around the command allows it to work for all UNIX command shells.
`xterm`	The xterm client is usually located in the /usr/bin/X11 directory on a UNIX host. In the X11R6 release of the X Window System, the directory is /usr/X11R6/bin. Although xterm is available on most hosts, some hosts have an additional terminal client (for example, aixterm, scoterm, or hpterm).
`-v`	(AIX hosts only) Use this switch with the aixterm client. It specifies that the terminal client runs in VT terminal mode.
`-fn 6x13`	Specifies the font for displaying normal text—in this case 6×13.fon, which is in the Misc fonts directory and aliased in Fonts.ali.
`-sb`	Specifies that lines scrolling off the top of the window should be saved. A scroll bar appears in the xterm window so that those lines can be viewed.
`-ls`	Specifies that the shell that is started in the xterm window is a login shell. You can run another X client on startup (in addition to the xterm) by adding the name of the client to the .login or .profile file.

`-d %IP#%`	The xterm parameter `-d` (short for `-display`) specifies where the xterm output should be sent. The X Window System uses three pieces of information to specify a unique location to which the X client sends its output: your computer's address, a display number, and a screen number. The parameter `%IP#%` is the equivalent of `%IP%:%#%.0`, each part of which is explained next. – Reflection X automatically substitutes the IP address of your computer for `%IP%`. (If Reflection X is not substituting the correct IP address, see *Autodetect local address* in the online help.) – The display number (whatever is specified in the **Display Number** box in Display Settings) is substituted for `%#%`. On your computer, the screen is always 0. – The colon (`:`) between the IP address and display number indicates that a TCP/IP connection is intended. A double colon (`::`) specifies a DECnet connection.
`-name %T%`	Specifies the name that appears in the X client's title bar. The `%T%` macro passes the text specified in **Description** (in Connection Settings) as the `-name` parameter.
`&`	The ampersand specifies that the xterm should run in the background. This means that the xterm will continue to run when the dialog box that monitors client startup is closed.

There are many other parameters for starting an xterm—you can, for example, specify a preferred size and position for the xterm window with the `-geometry` parameter, and specify background and foreground colors with the `-bg` and `-fg` parameters. You can also use the `-e` parameter for xterm to issue a single command, or start up a program, such as mail:

```
setenv DISPLAY %IP#%;/usr/bin/X11/xterm -e mail &
```

For documentation on xterm, type `man xterm` at your host prompt.

Starting an xterm: UNIX Shell Differences

The examples below are organized according to different UNIX shells. If you're not sure what shell you are using, log on to the host and type `echo $SHELL`. For most UNIX environments, the SHELL environment variable contains the name of the running shell (csh for the C shell, ksh for the Korn shell, or sh for the Bourne shell).

C Shell

The following UNIX C shell (csh) example starts the Motif window manager (mwm) and a number of other clients:

```
setenv DISPLAY %IP#%; (mwm & xterm & xgas & ico & xmille &)
```

`setenv DISPLAY`	The C shell command `setenv` defines variables in your environment. It determines where the output of the X clients and commands should be sent (in this case, your computer and its display number, `%IP#%`).
`(<clients>)`	The clients are enclosed in parentheses so that the `setenv DISPLAY` command applies to all of them. Each of the program names is followed by an ampersand (`&`) so that they can all run simultaneously.

Bourne or Korn Shell

With the Bourne shell (sh) or Korn shell (ksh), the entry in the **Command** box for starting the Motif window manager (mwm) and a series of clients looks like this:

```
DISPLAY=%IP#%; export DISPLAY; (mwm & xterm & xgas & ico & xmille &)
```

`DISPLAY=%IP#%`	Sets the variable `DISPLAY` to your computer's IP address and display number.
`export DISPLAY`	Uses the `export` command to make the value of `DISPLAY` available to other programs (the Motif window manager, xterm, xgas, and so on).

CHAPTER 8

Connecting to OpenVMS Hosts

Reflection X supports X clients running on OpenVMS host computers. You can connect to an OpenVMS host using the following transports:

- TCP/IP (see page 61)
- DECnet (see page 67)
- Serial (using Reflection Xpress—see page 69)

This chapter discusses client connection settings as they apply to OpenVMS hosts and illustrates how to run a DECterm client over TCP/IP or DECnet.

Reflection X Settings for OpenVMS Hosts

Before you start an X client on an OpenVMS host, check the following Reflection X settings. (Click Settings on the Reflection X menu bar to see the various settings categories.)

Font Path – (Font Settings)

Your font path should include at least miscellaneous fonts (misc) and the 75 dpi or 100 dpi fonts, depending on the resolution of your display. For an OpenVMS session, you should also install the DEC fonts (dec). If you intend to run DECwindows, having both 75 and 100 dpi fonts minimizes the need for font scaling and results in a better-looking display. The font path is searched in the order you specify, so if you are primarily running X clients on an OpenVMS host, you should put the DEC font set at the beginning of your font path.

If you need to add more font sets to your font path, do one of the following:

- Run the Setup program again and select the font sets you want.
- From the Fonts directory on the Reflection X CD-ROM, copy the directories that contain the fonts you want. Make sure any directories you copy fonts to are on your font path.

Color Model (Visual) – (Color Settings)
If your graphics card is set up for 65 thousand or more colors, the **Color Model** setting is TrueColor.

If your graphics card can display a maximum of 256 colors, this option should be set to PseudoColor (the default) because this is the most versatile setting. It lets the X clients you run define and select the maximum number of colors supported by the display. If this doesn't work, try StaticColor.

Host Keyboard – (Keyboard Settings)
You can select a keyboard mapping for a DEC, IBM, SCO, HP, or Sun host, or specify Generic, the default.

DECwindows Session Manager

The DECwindows Session Manager is an X client that helps you manage and customize your DECwindows environment. You can run applications from the menu bar and pause or end your sessions. Several of the sample Reflection X client files included with the product allow you to start the Session Manager:

When you use the DECwindows Session Manager, access control is disabled. This means that any network host is allowed to establish a connection with your server.

- For sample sessions over TCP/IP, see page 63.
- For sample sessions over DECnet, see page 67.

Host Requirements for Starting OpenVMS Clients over TCP/IP

Before you try the sample sessions that begin on page 63, make sure that for the OpenVMS host:

- TCP/IP support is enabled. (TCP/IP is not a standard part of OpenVMS and may have to be added.)
- One of the following is done:
  - If the file Pcx$server.com (which is part of a PATHWORKS or DECwindows installation) is on the host, you can use it to start individual X clients or the DECwindows Session Manager.

- If you want to use the DECwindows Session Manager, the file Startsm.erx must be installed on the host as Sys$system:startsm.exe (an OpenVMS system administrator, or a user with privileges sufficient for installing images on OpenVMS, must complete the installation steps described in the System Administrator online help).
- If you want to run a DECterm or other individual X clients (not the Session Manager), use the sample COM file called Startapp.crx in the X\Vms folder. The file must be transferred to your OpenVMS host (using ASCII as the transfer method) and renamed Startapp.com.

A system administrator may have already done these things.

Sample Sessions over TCP/IP

You should run X clients independent of the startup process that started the client. The method and command you choose depends on whether you have Pcx$server.com available on the host.

Starting a DECterm with Pcx$server.com over TCP/IP

If Pcx$server.com is on the host (look for it at Sys$system:), start Reflection X and click Open on the File menu. In the Open dialog box, select Pcxtcp.rxc, which is in the X\Vms folder by default. (If you are running Reflection X from a server, this directory is on the server, not on your local hard disk—copy Pcxtcp.rxc to your local User directory.) The Command now reads:

```
@sys$system:pcx$server.com 4,%#%,0,TCPIP,%IP% $create/term/detach
```

Descriptions of this command and its parameters follow:

`Pcx$server.com`	The file Pcx$server.com is included with DECwindows or PATHWORKS. The “at” sign (`@`) indicates that the file contains OpenVMS/DCL commands to execute (similar to a DOS batch file).

`4`	Indicates that you're using version 4 of Pcx$server.com. This is the latest version of the Pcx$server interface; it is backward compatible and can handle parameters appropriate for version 3 or 2. (See the System Administrator online help for more information on Pcx$server.com.)
`%#%`	The display number for your computer is automatically substituted for `%#%`.
`0`	The `0` specifies that output should be sent to your computer's screen.
`TCPIP`	Specifies the transport method, which in this case is TCP/IP.
`%IP%`	The IP address for your computer is automatically substituted for `%IP%`.
`$`	Specifies (to Pcx$server) that the remainder of the line is a separate DCL command and not an OpenVMS executable. The command `create/term/detach` starts a DECterm as a detached session.

Once a Telnet connection is successful, try changing the Method in the Connection Settings area from TELNET to either RSH or REXEC (if they are available on your system), since these connection methods are faster. When you are satisfied with the client startup process, clear the Host Response command on the Connection menu—you don't need it any more. Finally, save your settings to a Reflection X client file (open the File menu and click Save As). Starting the DECwindows Session Manager using Pcx$server.com is described on page 63.

Starting a DECterm over TCP/IP: Troubleshooting

If the DECterm fails to appear, make some changes to the Connection Settings using the information in the Host Response dialog box. This can help you resolve problems that occur during startup. For example:

- You might have a terminal process to which you want to connect (a session that was started earlier). The prompt looks like this:

  ```
  Connect to above listed process [YES]:
  ```

Click Advanced in the Connection Settings area, then insert a line between the Password prompt and the host command prompt. Under **Prompt**, enter the string the host should wait for (in this case, `]:` —the characters at the end of the host prompt). Type `no` in the **Response** column.

- If the login seems to have worked—you got past the prompts for User Name and Password and the host prompt is displayed—but the Host Response dialog box just sits there, wait a few seconds. The Enter Response dialog box comes up (provided you have specified a prompt and response in Advanced Client Connection Settings). In this dialog box, you can see exactly what the host is prompting you for and send the appropriate response.

Starting DECwindows Session Manager over TCP/IP

Reflection X includes two Reflection X client files that will help you start the DECwindows Session Manager on an OpenVMS host over TCP/IP. Both of these will work even if you don't have SYSNAM privileges on the host.

- One is called Smpcxtcp.rxc; it uses Digital's Pcx$server.com, which is usually already installed on your OpenVMS host. If Pcx$server.com is available, this is the recommended way of starting the Session Manager.
- The other file is called Sm_tcp.rxc; it uses host files that your system administrator must upload for you (see the information on starting the DECwindows session manager in the online help).

If you are using Pcx$server.com, click Open on the File menu in the Reflection X application window. Change to the X\Vms folder, select Smpcxtcp.rxc from the list of files, and click OK (if you are running Reflection X from a server, this directory is on the server, not on your local hard disk—copy Smpcxtcp.rxc to your local User directory). The command now reads:

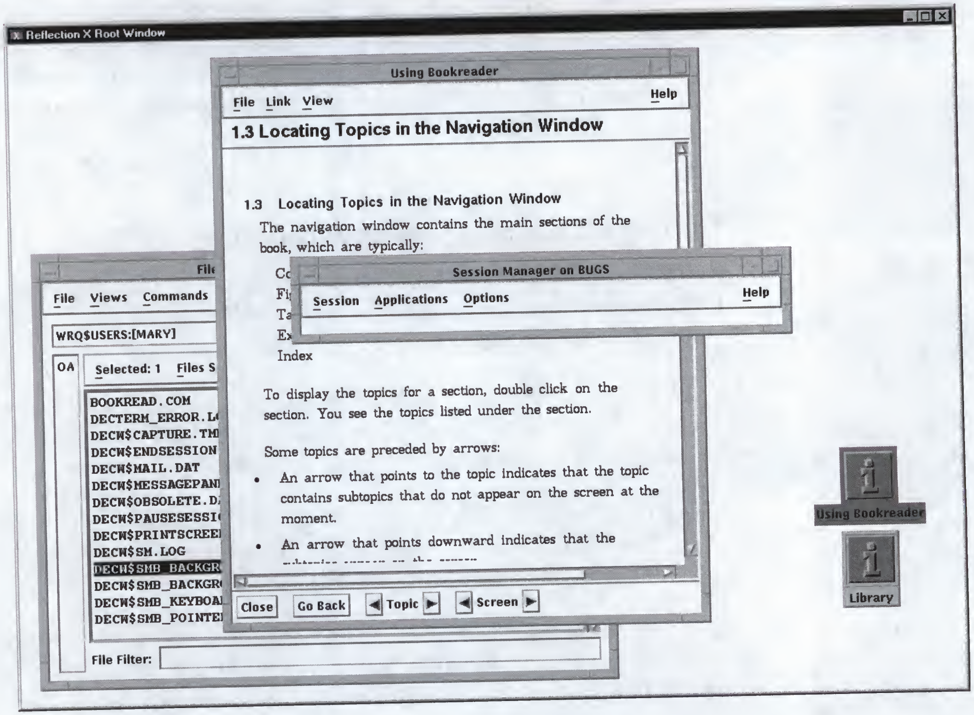
```
@sys$system:pcx$server.com 4,%#%,0,TCPIP,%IP% decw$startlogin.exe
```

If you are not using Pcx$server.com, open the file Sm_tcp.rxc instead. The command reads:

```
startsm %IP%
```

In the Connection Settings portion of the Reflection X application window, enter the host name, your user name and your password and then click Connect. At the Session Manager login screen, enter your name and password again.

Next you'll see the DECwindows Session Manager. From here, you can start up other X clients, such as Bookreader:


Reflection X Root Window
Using Bookreader
File Link View
Help
Session Manager on BUGS
Session Applications Options
Help
File
File Views Commands
OA
Selected: 1 Files S
File Filter:
Close
Go Back
Topic
Screen
Using Bookreader
Library

1.3 Locating Topics in the Navigation Window

1.3 Locating Topics in the Navigation Window

The navigation window contains the main sections of the book, which are typically:

Co
Fi
Ta
Ex
Index

To display the topics for a section, double click on the section. You see the topics listed under the section.

Some topics are preceded by arrows:

- An arrow that points to the topic indicates that the topic contains subtopics that do not appear on the screen at the moment.
- An arrow that points downward indicates that the

WRQ$USERS:[MARY]

```
BOOKREAD.COM
DECTERM_ERROR.L
DECW$CAPTURE.TM
DECW$ENDSESSION
DECW$MAIL.DAT
DECW$MESSAGEPAN
DECW$OBSOLETE.D
DECW$PAUSESESSI
DECW$PRINTSCREE
DECW$SM.LOG
DECW$SMB_BACKGR
DECW$SMB_BACKGR
DECW$SMB_KEYBOA
DECW$SMB_POINTE
```

Starting a DECterm with Startapp over TCP/IP

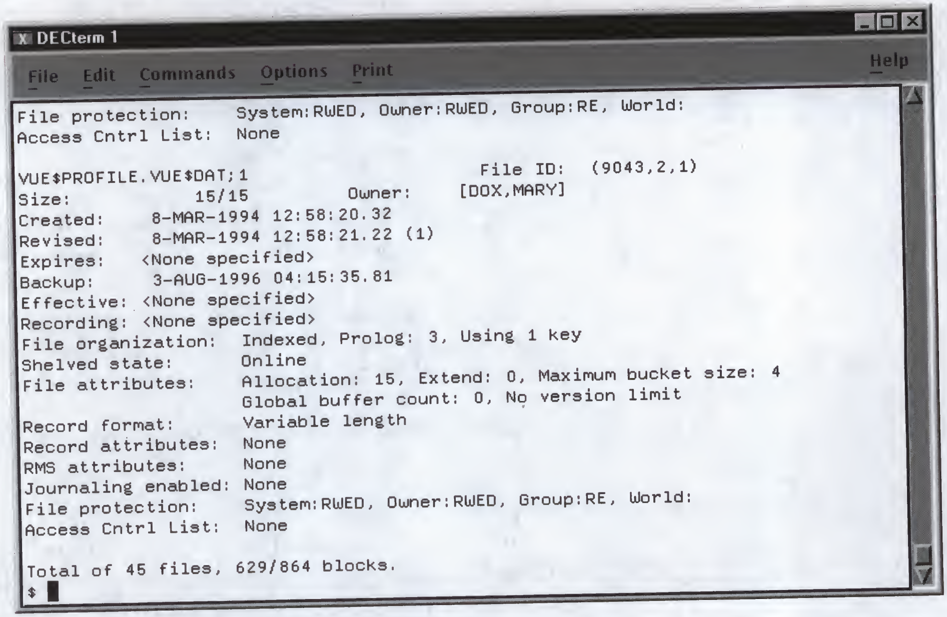
If Pcx$server.com is not available, click Vms.rxc in the list of files (by default, this file is installed in your User directory). The command now reads:

```
@startapp %IP% term
```

A definition of this command and its parameters follows:

`@startapp`	The file Startapp.com is included on your Reflection X disks (during Setup, it is copied to the X\Vms folder as Startapp.crx and must be renamed once it has been transferred to the host). It is a sample DCL command procedure that lets the X client run detached from the starting process. The "at" sign (`@`) indicates that the file contains OpenVMS/DCL commands to execute (similar to a DOS batch file).
`%IP%`	The IP address for your computer is automatically substituted for `%IP%`.
`term`	Specifies the client, in this case a DECterm. This can be replaced with any DECwindows program, such as calculator (enter "calc" in the **Command** box), File View (enter "fileview"), or the Session Manager (enter "startlogin"—to run the Session Manager you will need SYSNAM privileges on the host). Type `@startapp help` at the DCL prompt to see a list of these common programs.

Click Connect. To stop a connection attempt, click Cancel.



```
File protection:    System:RWED, Owner:RWED, Group:RE, World:
Access Cntrl List:  None

VUE$PROFILE.VUE$DAT;1                    File ID:  (9043,2,1)
Size:            15/15        Owner:    [DOX,MARY]
Created:    8-MAR-1994 12:58:20.32
Revised:    8-MAR-1994 12:58:21.22 (1)
Expires:   <None specified>
Backup:     3-AUG-1996 04:15:35.81
Effective: <None specified>
Recording: <None specified>
File organization:  Indexed, Prolog: 3, Using 1 key
Shelved state:      Online
File attributes:    Allocation: 15, Extend: 0, Maximum bucket size: 4
                    Global buffer count: 0, No version limit
Record format:      Variable length
Record attributes:  None
RMS attributes:     None
Journaling enabled: None
File protection:    System:RWED, Owner:RWED, Group:RE, World:
Access Cntrl List:  None

Total of 45 files, 629/864 blocks.
$ 
```

Once a Telnet connection is successful, try changing the **Method** in the Connection Settings area from TELNET to either RSH or REXEC—these connection methods are faster. When you are satisfied with the client startup process, select the Host Response command on the Connection menu again to turn this option off—you don't need it any more. Finally, save your settings to a Reflection X client file (click Save As on the File menu).

Sample Sessions over DECnet

The DECnet support in Reflection X lets you start X clients on OpenVMS hosts via DECnet; some client files are included that can help you get a DECterm or the DECwindows Session Manager started.

Before you can start up a client, your PC configuration must meet a few DECnet software requirements; they are described on page 14.

Using the Right Version of PATHWORKS

If you plan to use DECnet as your transport rather than TCP/IP, you must have PATHWORKS installed on your PC. Use the version of PATHWORKS listed below that supports the version of Windows you are using to run Reflection X:

- **Windows 95**—PATHWORKS Windows 95 Release, version 1.0a, or PATHWORKS version 7.0
- **Windows NT 4.0**—PATHWORKS version 7.0

Sample Session: DECwindows Session Manager over DECnet

There are two Reflection X client files (Sm_pcx.rxc and Sm_dnet.rxc) for starting the DECwindows Session Manager over DECnet; they are described next. Regardless of which method you use, you must enter the node name or ID of the host to which you want to connect in the **Host Name** box, and then fill in the **User Name** and **Password** boxes.

The PCX$SERVER Method

To use the PCX$SERVER method to start the DECwindows Session Manager, start Reflection X, and in the Reflection X application window, click Open on the File menu. In the Open dialog box, select Sm_pcx.rxc from the list of files, and click OK (if you are running Reflection X from a server, this directory is on the server, not on your local hard disk). The command now reads:

```
%DN%,decw$startlogin.exe
```

Now click Connect. Enter your user name and password at the Session Manager login screen. Next you'll see the DECwindows Session Manager, from which you can start up other X clients.

Starting a DECterm Using the PCX$SERVER Method

Digital has developed an OpenVMS script file called Pcx$server.com, which can be defined (by your system administrator) as a DECnet object and then used to start clients.

Start Reflection X, and in the Reflection X application window, click Open on the File menu. In the Open dialog box, select Pcxserv.rxc from the list of files, and click OK. The command now reads:

```
%DN%,decw$terminal.exe
```

The Method in Pcxserv.rxc is PCX$SERVER.

CHAPTER 9

Making a Serial Connection

Reflection Xpress is serial X technology that was developed by Tektronix, Inc., and is included in Reflection X. It uses compression technology specifically designed for the X protocol to provide a serial link to remote X applications. Reflection Xpress gives you the convenience of dial-up X so that you can use e-mail, run control applications, have access to host databases, and start other X clients from home or while you are on the road.

You need to do all of the following before you can use Reflection Xpress. Each item is explained in this chapter.

- Set up Reflection X for a serial connection.
- Check that the necessary files have been uploaded to the host.
- Configure Reflection for UNIX and Digital for a serial connection. (If you already have Reflection for ReGIS Graphics or Reflection for HP for Windows 95 and Windows NT, you can configure it instead.)
- Start a Reflection Xpress session.

There are also some steps that your system administrator has to take care of:

- Upload sxprocess to a UNIX and/or OpenVMS host.
- Configure the sxprocess program. This is done using either an sxprocess configuration file, or parameters that you specify on the command line (at the host prompt) when you start sxprocess.

The System Administrator online help has more information about these last two steps.

Configuring Reflection X for a Serial Connection

The Reflection X Setup program can install the files for a serial connection, including Reflection for UNIX and Digital, on your PC. You may already have another WRQ product—Reflection for HP (formerly called Reflection 1) or Reflection for ReGIS Graphics (formerly called Reflection 4)—that you prefer to use instead of Reflection for UNIX and Digital. Make sure that that product is for Windows 95/Windows NT.

In spite of the compression of X requests, running X clients over a serial connection is slower than using a TCP/IP or DECnet connection. Here are some suggestions for improving performance over a serial connection:

- If you can, use a local window manager (configured in the Window Manager Settings dialog box). If you need to use a remote window manager, use one that is small, such as tab window manager (twm).
- Set **Backing Store** (under Server Settings) to When Mapped.
- Avoid applications that load large bitmaps.
- Avoid running X clients that perform frequent screen updates at the beginning of the session script. These bandwidth-intensive programs slow the process of starting subsequent clients in the script.

Checking the Host Files

Your system administrator needs to upload the sxprocess program to the host and create a configuration file in the home directory of each user:

- On a UNIX host, the configuration file is called ".sxprocessrc". To see if this file is already in your home directory on a UNIX host, type `ls -a` at the host prompt. You'll see a directory listing that includes hidden files.
- On an OpenVMS host, the configuration file is called "sxprocessrc.". Type `DIR` to see if it's in your directory. If it's not there, your system administrator may have set it up as a global symbol (also known as a "foreign command"). To see if this is the case, type

  ```
  sxprocess -help
  ```

Uploading sxprocess should be done by a system administrator. See the System Administrator online help for more information.

Configuring Reflection for UNIX and Digital for a Serial Connection

You need to make sure that Reflection for UNIX and Digital is properly configured to establish a serial connection (Reflection for ReGIS Graphics or Reflection for HP can also be used):

1. Check to see that the COM port and baud rate are configured correctly; these are explained in the online help for Reflection for UNIX and Digital.
2. Save the settings for Reflection (for example, to Rxpress.r2w). Log off the host, disconnect your modem, and close Reflection.

Sample Session: Reflection Xpress

When the X server, the host computer, and Reflection are all set up, use the following steps to connect to the host. Once you have made a connection, you can combine these steps into a Reflection Basic script file.

1. Click New Serial Connection on the Reflection X Connection menu.
2. In the **.EXE File** box, enter the location of R2win.exe (this is the Reflection for UNIX and Digital executable file). If this file is not in your path, enter the full path and file name.
3. In the **Settings File** box, enter the name of your Reflection for UNIX and Digital settings file.
4. Click Connect. This should start Reflection for UNIX and Digital.
5. In the terminal window for Reflection for UNIX and Digital, enter your user name and password.

6. Start the host portion of Reflection Xpress; this portion is known as the "proxy server":

   - On a UNIX host, type `sxprocess` (do not use an ampersand).
   - On an OpenVMS host, type `SXPROCESS` if the proxy server has been defined as a global symbol. If it hasn't, type `RUN SXPROCESS.EXE`.

   Reflection for UNIX and Digital is minimized and sxprocess starts whatever client you (or your system administrator) have specified in the configuration file (usually an xterm or DECterm). If a session script is specified in that file, it is also run:

   - On a UNIX host, the configuration file is called ".sxprocessrc" and the session script is (by default) called ".XpressSession".
   - On an OpenVMS host, the configuration file is called "Sxprocessrc." and the session script is (by default) called "Sxpsession.com".

   Once the X client starts, it runs just as it does over a network connection (though a little slower).

In addition to starting other X clients on the server where sxprocess is located, it is possible to use Telnet to reach other hosts on the network once you have an xterm or DECterm started. For example, on a UNIX host:

1. Start the sxprocess program on one host (the remaining steps assume a host named "hambone"); the *defaultSession specified in the configuration file for sxprocess starts an xterm.
2. At the xterm prompt, use the echo command to see the value of the DISPLAY variable:

   ```
   echo $DISPLAY
   ```

   The response should look something like this:

   ```
   unix:<n>.0
   ```

   The parameter <*n*> is a number that is 1 or higher.

3. Now use Telnet to connect to another host (for example, "fishhead"):

   ```
   telnet fishhead
   ```

4. Log in and use the setenv command to set the second host's display to the host running sxprocess (<*n*> is the number the host responded with in step 2). For example:

   ```
   setenv DISPLAY hambone:<n>.0
   ```

   If you are running the Korn shell (ksh), type these two commands instead:

   ```
   set DISPLAY= hambone:<n>.0
   export DISPLAY
   ```

5. Now you can run X clients on the second host. When you log out, you'll see the message "connection closed by foreign host." Make sure that you log out of your host session and disconnect your modem—otherwise, the connection will stay open. See the description of the Close command on page 78 for more information.

Creating a Reflection for UNIX and Digital Script File

By creating a Reflection Basic script file and specifying it in the Connection Settings area for a serial client file, you can automate.the process of logging on to a host when you use Reflection Xpress.

1. Start Reflection X.
2. Select an existing serial client file, configured as per the instructions on page 71.
3. Click Connect. Reflection for UNIX and Digital will start, using the settings you specified.
4. Start recording a script. See the Reflection for UNIX and Digital online help for more information about recording Reflection Basic scripts.

5. Record the tasks you want to include in the script. For example:
   - Log on to the host.
   - Enter your password.

     The password is not stored in the file if you use the script just as you recorded it. You can edit the script to include the password.
   - Start sxprocess.
   - Record this in the script by closing all the X clients that start up when sxprocess starts.
   - Log off the host.
   - Close your serial connection.
6. Stop recording, save the script, and test it.
7. When you are satisfied with the script file, close Reflection for UNIX and Digital.
8. Back in the Connection Settings area of the Reflection X application window, enter the name of the script file in the Script File box.
9. Click Save.

When you want to begin a serial session, double-click a serial client file in the client file list. This starts Reflection for UNIX and Digital, using the settings file you specified, and runs the Reflection Basic script file you specified.

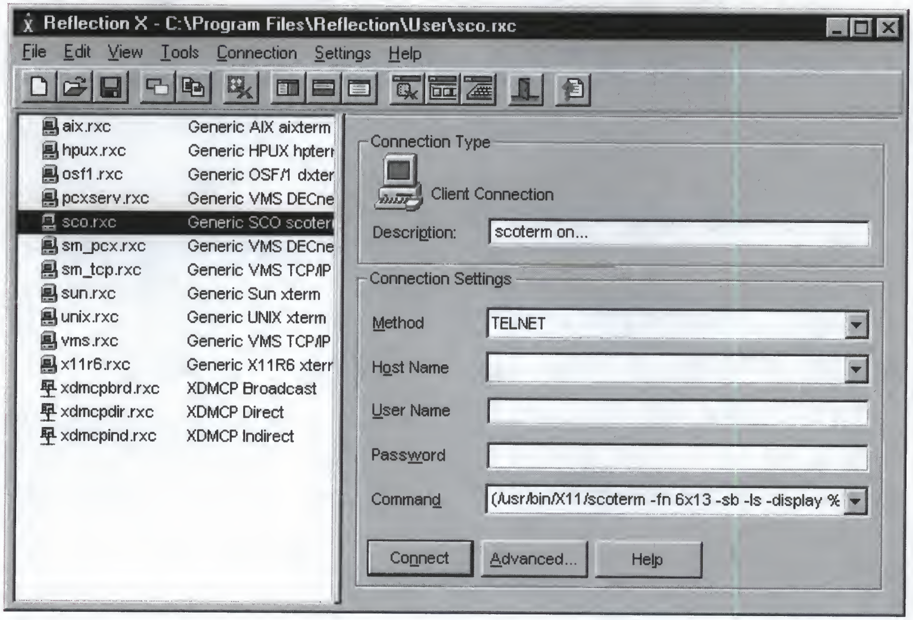
CHAPTER 10

The Reflection X User Interface

This chapter discusses the various elements of the Reflection X user interface.

Changing the View

When you first open the application window (by clicking the Reflection X icon on the Start menu), you see a split view, with a list of connection files on the left and Connection Settings on the right.


Reflection X - C:\Program Files\Reflection\User\sco.rxc
File
Edit
View
Tools
Connection
Settings
Help
Connection Type
Client Connection
Connection Settings
Connect
Advanced...
Help

aix.rxc	Generic AIX aixterm
hpux.rxc	Generic HPUX hpterr
osf1.rxc	Generic OSF/1 dxter
pcxserv.rxc	Generic VMS DECne
sco.rxc	Generic SCO scoter
sm_pcx.rxc	Generic VMS DECne
sm_tcp.rxc	Generic VMS TCP/IP
sun.rxc	Generic Sun xterm
unix.rxc	Generic UNIX xterm
vms.rxc	Generic VMS TCP/IP
x11r6.rxc	Generic X11R6 xterr
xdmcpbrd.rxc	XDMCP Broadcast
xdmcpdir.rxc	XDMCP Direct
xdmcpind.rxc	XDMCP Indirect

Description: scoterm on...

Method: TELNET

Host Name:

User Name:

Password:

Command: (/usr/bin/X11/scoterm -fn 6x13 -sb -ls -display %

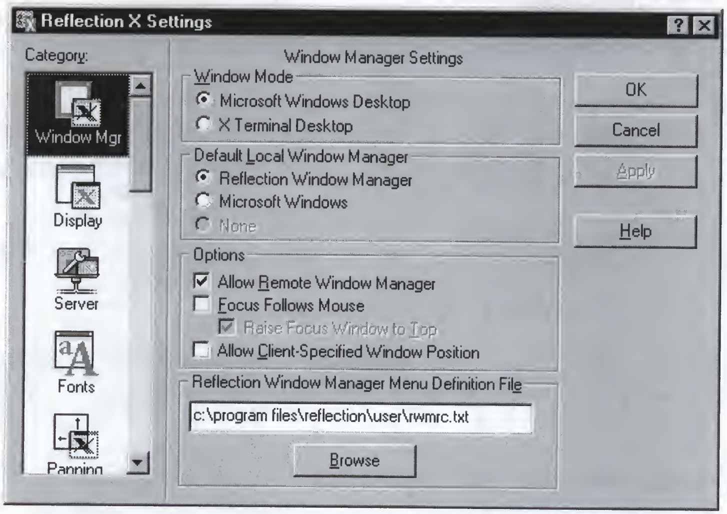
Use the commands on the View menu or the corresponding toolbar buttons to display different views of the application window:

Split Window Vertically	◫	View the connection list and the Connection Settings areas side by side. The settings for the highlighted file in the connection list appear in the Connection Settings area. This is the default view.
Split Window Horizontally	⊟	View the connection list above the Connection Settings area. The settings for the highlighted file in the connection list appear in the Connection Settings area.
List View	▤	View the connection list only.
Edit View	(no toolbar icon)	View the Connection Settings area only.

Use the Sort By commands on the View menu to arrange the connection list by file name, by host name, or by connection type (standard, XDMCP, or serial).

Reflection Settings

Click any of the commands on the Settings menu in the Reflection X application window to configure Reflection X. Once you are in a settings dialog box, other settings dialog boxes are available from the Category ribbon on the left:



Window Manager Settings

Window Mode
● Microsoft Windows Desktop
○ X Terminal Desktop

Default Local Window Manager
● Reflection Window Manager
○ Microsoft Windows
○ None

Options
☑ Allow Remote Window Manager
☐ Focus Follows Mouse
☑ Raise Focus Window to Top
☐ Allow Client-Specified Window Position

Reflection Window Manager Menu Definition File
c:\program files\reflection\user\rwmrc.txt

(Toolbar settings are available in a separate dialog box with multiple tabs.)

See the Reflection X online help for complete information on any Settings dialog box. For help in a Settings dialog box, click the question mark icon on the right side of the title bar and then click on the option you want to know more about. You can also right-click on any option to display a "What's This?" button, which you can then click.

The Control Menu

All Windows applications have a Control menu that you can use to resize, minimize, maximize or close the application. Click in the upper-left corner to display the Control menu. In Reflection X, the Control menu has been enhanced to provide additional functionality. The Reflection X Control menu is available from a variety of locations:

- In the Reflection X application window.
- In client windows, when Reflection X is in Windows Desktop mode—that is, when the Microsoft Windows Desktop option is selected in Window Manager Settings. See page 81 for information about Window options.
- In the Reflection X Root Window, when Reflection X is in X Terminal Desktop mode.
- When you right-click a minimized Reflection X icon.

The first five commands on the Reflection X Control menu—**Restore, Move, Size, Minimize,** and **Maximize**—are the same as for any Windows application. The additional commands are as follows:

Reset X Server
Resets the X server, terminating all running X clients. Many Reflection X settings do not take effect until the X server is reset—see the online help for a list of these settings.

Close
When executed from the application window or the root window, this command terminates any active clients and quits Reflection X. When executed from a client window, this command terminates the client.

You are prompted to confirm the end of your Reflection X session if the **Confirm Before Closing Server** check box is selected in Server Settings.

If you're using Reflection Xpress and have clients running over a serial connection, the clients and sxprocess (the host portion of Reflection Xpress) are stopped when you exit Reflection X. If you then restart Reflection X, and if Reflection for UNIX and Digital is still running, sxprocess can be started at the host prompt. If Reflection for UNIX and Digital is closed while a serial client is running, sxprocess is not stopped.

Copy Selection, Copy Window, Copy Rectangle

Use these commands to copy text or graphics to the Clipboard, to a file, to the printer, or to any combination of these destinations. When you copy data, Reflection X displays a dialog box that prompts you to specify which of these destinations you want to copy to. Use the Clipboard Settings dialog box, described in the online help, to set defaults and preferences for the Copy commands.

Copy Selection copies the selected text. In addition to prompting for a destination, Reflection X also prompts you to specify where to copy data from—Reflection X supports multiple buffers for data. If you use the default value, PRIMARY, Reflection X functions like other Windows applications. For information on other options, see the online help.

Copy Window is available only from the Control menu of an X client window; it copies the entire X client window, not including its borders. If your **Window Mode** is set to X Terminal Desktop, this means that the entire X root window and the clients within it are copied. In Microsoft Windows Desktop mode, only the active window is copied.

Copy Rectangle copies a rectangular graphic area. When you choose Copy Rectangle, the cursor becomes a cross hair: to make a selection, press the left mouse button and drag the mouse. The rectangular selection can be any portion of the X client window (excluding the borders).

X Desktop

Reflection X includes an option called **Treat Windows Desktop as X Root** (in Display Settings). When this option is selected, (assuming the **Window Mode** is set to Microsoft Windows Desktop), Reflection X equates the Microsoft Windows desktop with the X root window. When this option is not selected, a separate root window is maintained. The X Desktop command on the Reflection X menu (and its keystroke equivalent, Shift-right mouse button) gives you a way of toggling quickly between these desktop modes. This command affects only your current Reflection X session—it does not change the setting for **Treat Windows Desktop as X Root**.

Client application windows have a hierarchical relationship. The *root window* is the window that the window manager opens, and is the parent of all the application windows displayed on it. The other application windows are *children* of the root window. When you close the parent window, the child windows also close.

The X Desktop command is unavailable if the **Window Mode** is set to X Terminal Desktop.

Client Startup

Opens the Reflection X application window, which is where X clients are started. See "Using Client Files," starting on page 29.

Settings

Opens the Settings dialog box, where you can make changes to Reflection X to suit your environment and preferences. See the online help for information about specific settings.

Trace

Opens the Reflection X Trace dialog box for capturing X protocol data communications in a file and then translating the data so that it can be read or played back. See the online help for details.

Help

Opens the Reflection X online help system.

About Reflection X

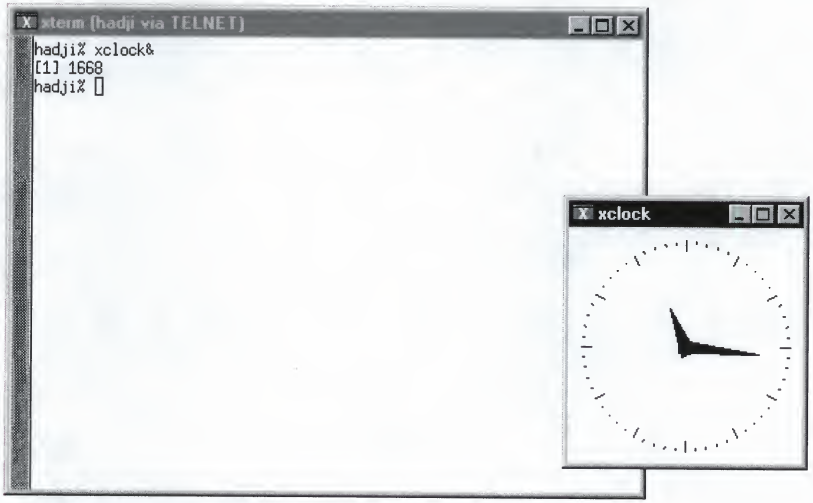
Opens the Reflection X About Box, which serves as a quick reference for some important configuration items.

Connection File History

The client files that have been opened most recently are listed at the bottom of the Control menu. Clicking one opens the Reflection X application window with the corresponding connection settings displayed.

Window Options

Reflection X allows you to display client applications in three ways, depending on the **Window Mode** setting in Window Manager Settings. The first option is to set the **Window Mode** to Microsoft Windows Desktop and use Microsoft Windows as the window manager:

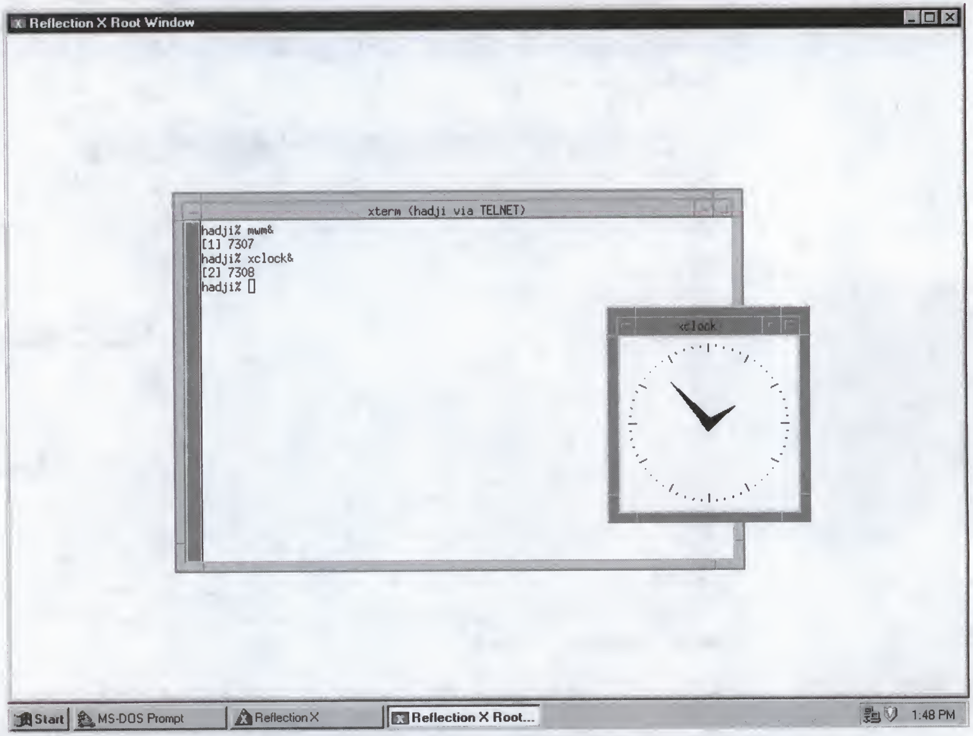


```
hadji% xclock&
[1] 1668
hadji% []
```

Microsoft Windows Desktop mode

Each client window has Windows borders and controls, and behaves like other Windows applications (in terms of maximizing, minimizing, resizing, and so on). In this mode, a window is opened for each X client application, and each window is controlled by the window manager that is part of Microsoft Windows.

The second option is to set the **Window Mode** to X Terminal Desktop, so that the desktop fills your entire Windows screen:


Reflection X Root Window
xterm (hadji via TELNET)
xclock
Start
MS-DOS Prompt
Reflection X
Reflection X Root...
1:48 PM

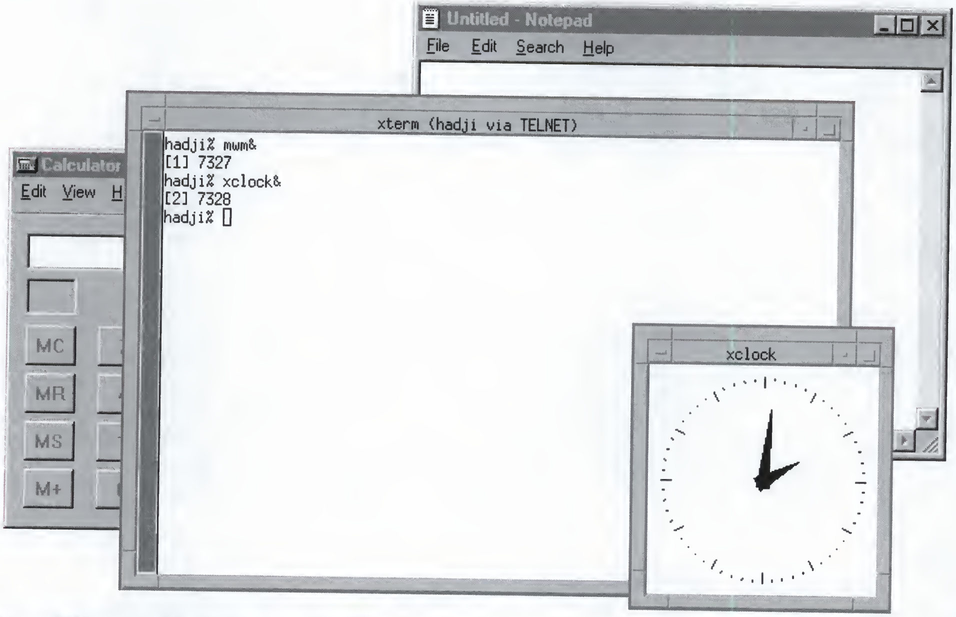
```
hadji% mwm&
[1] 7307
hadji% xclock&
[2] 7308
hadji%
```

X Terminal Desktop mode

All clients are run in one full-screen Microsoft window, so your display is similar to the standard display of an X terminal. This is sometimes known as "single window mode."

Within this desktop, you must use either the Reflection Window Manager (see page 85) or a remote window manager (such as Motif, Open Look, or HP VUE) to control the behavior of client windows. To get to your other Windows application, minimize the Reflection X window.

The third option is to have **Window Mode** set to Microsoft Windows Desktop and to run the Reflection Window Manager or a remote window manager. In this mode, each X client runs in a separate window with the characteristics of the remote manager you have selected:


Untitled - Notepad
File Edit Search Help
xterm (hadji via TELNET)
Calculator
Edit View H
MC
MR
MS
M+
xclock

```
hadji% mwm&
[1] 7327
hadji% xclock&
[2] 7328
hadji% ▯
```

Microsoft Windows Desktop mode with remote window manager

This option requires that **Allow Remote Window Manager**, in Window Manager Settings, be selected.

This is a good option if you prefer the Windows environment but run X clients that require the use of a remote window manager. In this mode, the conventions of Microsoft Windows and the remote window manager won't always match—for example, with regard to which window gets focus and when. See the online help for details.

CHAPTER 11

The Reflection Window Manager

The Reflection Window Manager is a local X Window client that allows you to manage X client windows in Reflection X. The Reflection Window Manager is modeled on the Motif window manager (mwm). Its chief advantage over remote window managers like Motif or the OpenLook window manager (olwm) is that it doesn't run on the network. This can be important when network traffic constrains performance.

Starting and Exiting the Reflection Window Manager

Follow these steps to start the Reflection Window Manager:

1. Click Window Manager on the Settings menu to open the Window Manager Settings dialog box.
2. Select Reflection Window Manager in the **Default Local Window Manager** section.

To exit the Reflection Window Manager, select Microsoft Windows or None as the **Default Local Window Manager** setting of the Window Manager Settings dialog box.

While the Reflection Window Manager is the Default Local Window Manager, the Reflection Window Manager is always running. There are two exceptions:

- If the **Allow Remote Window Manager** option (in the Window Manager Settings dialog box) is selected, the Reflection Window Manager is stopped as soon as Reflection X attempts to use XDMCP to establish a connection. This is because XDMCP hosts are typically configured to start their own window managers, which would then conflict with the Reflection Window Manager. When the last XDMCP session closes, Reflection automatically resets, which restarts the Reflection Window Manager. (You can configure Reflection X to not reset when the last X client is closed, in which case you must manually reset Reflection X to restart the Reflection Window Manager.)

  If you want the Reflection Window Manager to continue running as you make XDMCP connections, clear the **Allow Remote Window Manager** option.

- If **Allow Remote Window Manager** is selected and you start a remote window manager (or connect to an X client that automatically starts a remote window manager), the Reflection Window Manager automatically yields to the remote window manager—that is, it shuts down. The Reflection Window Manager restarts automatically as soon as the remote window manager is no longer running.

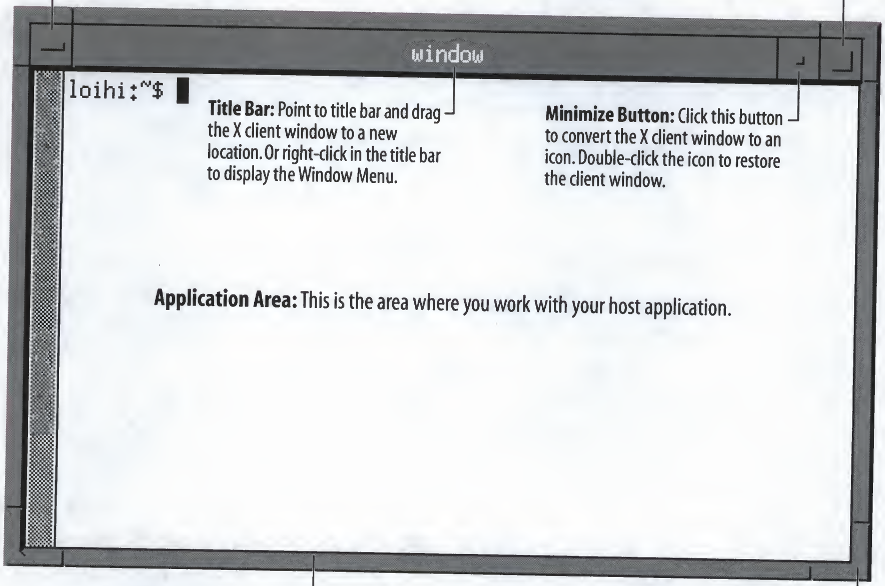
Managing the Reflection Window Manager

The Reflection Window Manager provides an environment in which you can manage X client windows and icons. It is modeled on the Motif window manager (mwm). Here are some of the features the Reflection Window Manager provides:

- A frame around each X client window that you can use to control the Reflection Window Manager. See page 87.
- A logical system for organizing windows and icons. See page 88.
- An input focus policy. See page 88.
- Three menus. See page 89.
- A set of defined keystrokes and mouse actions. See page 91.

Using the Frame

Each X client window in the Reflection Window Manager is surrounded by a frame:



```
loihi:~$
```

Window Menu Icon: Click this button to display the Window Menu.

Maximize Button: Click this button to expand the X client window to fill the entire screen. Click again when the window is maximized to restore it to its former size.

Title Bar: Point to title bar and drag the X client window to a new location. Or right-click in the title bar to display the Window Menu.

Minimize Button: Click this button to convert the X client window to an icon. Double-click the icon to restore the client window.

Application Area: This is the area where you work with your host application.

Frame Edge: Hold the cursor over the edge of the frame until the cursor changes. Now you can drag to move the edge out (to expand the X client window) or in (to shrink the X client window).

Frame Corner: Hold the cursor over this area until the cursor changes. Now you can drag the corner in any direction to change the size and shape of the X client window.

You can manage an X client window by manipulating its frame:

- Position the mouse cursor over the title bar of an X client window and press the left mouse button. Now you can drag the client window anywhere on the screen. When the window is where you want it, release the mouse button.
- Position the mouse cursor over any of the sides of an X client window until the cursor changes into an arrow pointing at a straight line. Now you can drag the side to reposition it.

- Position the mouse cursor over any of the corners of an X client window until the cursor changes into an arrow embedded in a right angle. Now you can drag the corner to reposition it.
- Click the smaller button in the upper-right corner of the frame once to minimize an X client window. Later, you can double-click the icon to restore the client window.
- Click the larger button in the upper-right corner of the frame to maximize an X client window. Later, you can click the same button again to restore the window to its previous size.
- Click in the upper-left corner of an X client window to display the Reflection Window Manager's Window Menu for this client—see page 90 for information on the Window menu.

Organizing Windows and Icons

The Reflection Window Manager keeps track of your various X client windows and icons. Think of each window and icon as having a place in a stack. By default, the window or icon that has focus is at the top of the stack. The Reflection Window Manager indicates which window has focus by displaying its frame in a different color. You can use the mouse or the keyboard to "shuffle" a window or icon to the top or to the bottom of the stack:

- Click in an X client window, on its title bar, or on an icon, to move it to the top of the stack. (This assumes that the **Focus Follows Mouse** option in the Window Manager Settings dialog box is not selected—if it is, just moving the mouse cursor over an X client window gives it focus.)
- Press Alt+Tab to shuffle forward through the stack or Shift+Alt+Tab to shuffle backward. (If these keystrokes do not work, look at the **Alt Key Reserved for Windows** option in the Keyboard Settings dialog box. If both Alt keys are reserved, the keystrokes cannot be used. Try freeing up one or both Alt keys.)
- The Root menu has Shuffle Up and Shuffle Down commands. Click with the right mouse button in the X Desktop to display the Root menu.

Input Focus

The Reflection Window Manager uses an *explicit* input focus policy by default. This means that you must point to a window and click to move the focus to that window.

Under an explicit input focus policy, once you move the focus to a window, all text that you type is interpreted by that client, regardless of where the mouse pointer is. In the case of xterm and similar clients, text that you type appears in the window. Other clients might interpret keystrokes as commands. In order to type in or issue commands to affect another client, you must transfer focus to that window by clicking in it with the left mouse button.

If you select the **Focus Follows Mouse** option in the Window Manager Settings dialog box, you configure the Reflection Window Manager to use an *implicit* focus policy. Now when you move the mouse cursor over a window, focus automatically switches to that window.

Reflection Window Manager Menus

The Reflection Window Manager provides three menus. You can add, remove, or redefine the commands on these menus, or even create an entirely new menu. You can also redefine the keystrokes and mouse options that bring menus into view.

The Root Menu

This menu is available only in the X Desktop. To display the Root menu, right-click in the X Desktop.

The commands on the Root menu are:

Shuffle Up	Moves the X client window or icon currently at the bottom of the stack to the top of the stack.
Shuffle Down	Moves the X client window or icon currently at the top of the stack to the bottom of the stack.
Refresh	Redraws all X client windows and icons.
Pack icons	Rearranges icons in an optimal fashion.
Restart	Restarts the Reflection Window Manager. This command is relevant if you make changes to a Reflection Window Manager resource file. Restarting the Reflection Window Manager reloads the resource files, activating the changes.

The Window Menu

This menu is available by clicking in the upper-left corner of an X client window, by right-clicking a window frame or an icon, or by pressing Shift+F10 (when an icon has focus). The commands on the Window menu apply only to the current X client window or icon.

The commands on the Window menu are:

Restore	Causes a minimized or maximized X client window to be returned to its normal size.
Move	"Grabs" the window so that you can move it with the mouse, without pressing any buttons. Left-click to place the window. This command also allows you to move an X client window by means of the arrow keys on the keyboard.
Size	Allows you to resize an X client window by positioning and clicking the mouse. (You can also resize by dragging one of the sides or corners of a client window.)
Minimize	Minimizes the X client window.
Maximize	Increases the size of the X client window or icon to fill the entire screen.
Lower	Moves the X client window or icon to the bottom of the stack.
Close	Closes the X client window.

The Client Menu

This menu is available by left-clicking in the root window.

The commands on the Client menu are:

Application Window	Displays the Reflection X application window. This is the main Reflection X user interface.
Client Wizard	Starts the Reflection X Client Wizard.

Font Compiler	Starts the Reflection X Font compiler.
RX Settings	Opens the Reflection X Settings dialog box.
RX Help	Opens the Reflection X help file, displaying the Reflection Window Manager Overview topic.

Reflection Window Manager Keystrokes and Mouse Options

The following keystrokes and mouse actions are defined for the Reflection Window Manager. You can add new definitions, remove definitions, or change the definition for a particular keystroke or mouse option. You can also redefine the menus that can be displayed in the Reflection Window Manager—information on how to do this is available in the online help.

Defined Mouse Actions

Right-click in root window	Displays the Root menu.
Left-click in root window	Displays the Client menu.
Left-click in client window or frame	Raises the window to the top of the stack and gives it focus—that is, makes it the X client window into which characters can immediately be typed. (This assumes that the **Focus Follows Mouse** option in the Window Manager Settings dialog box is not selected—if it is, just moving the mouse cursor over an X client window gives it focus.)
Left-click icon and drag	Moves the icon.
Double-left-click icon	Restores the X client window.
Right-click on icon or window frame	Displays the Window menu.
Left-click icon	Displays the Window menu and directs focus to icon.

Defined Keystrokes

If any keystroke that includes the Alt key does not work, look at the **Alt Key Reserved for Windows** option in the Keyboard Settings dialog box. If both Alt keys are reserved, keystrokes including Alt cannot be used. Try freeing up one or both Alt keys. The order in which you press keys matters—always press the first key listed first. These keystrokes work only when an X client window or icon is active—not when a Microsoft window is active.

Alt+Esc or Alt+Shift+Tab	Moves the window (or icon) currently at the top of the stack to the bottom.
Alt+Shift+Esc or Alt+Tab	Moves the window (or icon) currently at the bottom of the stack to the top.
Shift+F1	Displays the Window menu for the current icon.

Configuring the Reflection Window Manager

Two files determine the configuration of the Reflection Window Manager. Both are in the User directory:

Rwmrc.txt	This is the Reflection Window Manager's Menu Definition File. It defines the menus associated with the Reflection Window Manager and the mouse actions and keystrokes that can be used to control it. See the online help for information on editing the Menu Definition File.
Local X Resource File	This file, identified in the XRDB Settings dialog box, contains a list of X client properties. The default file name is Xrdb.txt. As shipped with Reflection X, Xrdb.txt does not include configuration information specific to the Reflection Window Manager. However, you can add entries to the local X resource file that identify Reflection Window Manager resources, and then edit those resources. See the online help for information.

CHAPTER 12

Working with the Toolbar

This chapter lists the options available on the default toolbar, and describes how to move or resize the toolbar. See the online help for information on customizing the buttons on the toolbar.

A toolbar is a panel of buttons that provides command shortcuts for application tasks. Reflection X supplies a default toolbar with buttons for frequently used commands, and lets you customize the toolbar by editing buttons or adding new ones. Click Toolbar on the View menu to toggle the toolbar into or out of view.

Default Toolbar

The first time you start Reflection X, the default toolbar is displayed. The buttons are as follows:

Button	Command	Description
🗋	**New**	Opens the New Connection dialog box.
📂	**Open**	Displays the Open dialog box so that a new client file can be opened.
💾	**Save**	Saves the current settings to the current client file.
⧉	**Copy Rectangle**	Copies a rectangular area of the screen to the Clipboard.
⧉	**Copy Selection**	Copies the highlighted selection to the Clipboard.
⊞	**X Desktop**	Toggles between using Windows desktop as the X root and using a special Reflection X desktop.

Button	Command	Description
	Split Window Vertically	Displays the connection list next to the Connection Settings in the application window.
	Split Window Horizontally	Displays the connection list above the Connection Settings in the application window.
	List View	Displays only the connection list in the application window.
	Most Recent Settings	Displays the most recently opened settings dialog box.
	Toolbar Settings	Displays the Toolbar Settings dialog box.
	Keyboard Settings	Displays the Keyboard Settings dialog box.
	Exit	Exits Reflection X. If any clients are running, Reflection X prompts you to close them.
	Help Contents	Opens the Reflection X online help system.

A short description (*ToolTip*) also appears beneath a given button when the mouse pointer is over it.

To activate a button, click it with the left mouse button. The actions associated with the button are executed.

Manipulating the Toolbar

You can perform various actions on the entire toolbar panel. For example, you may want to move the toolbar to a location different than the top of the Reflection X application window. The following sections describe different ways you can manipulate and position the toolbar to best suit your work style.

Moving the Toolbar

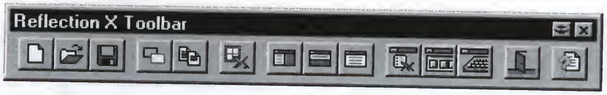
To move the toolbar to a different location on the display:

1. Click on a non-button area of the toolbar.
2. Drag the toolbar outline to a new location.
3. Release the mouse button.

To return the toolbar to its last position, double-click anywhere in the toolbar (except on a button) using the left mouse button.

Attaching and Sizing the Toolbar

The first time you display the toolbar, it is "attached" to the top margin of the Reflection X window. If you move the toolbar away from the sides of the window, it becomes a "floating" toolbar:



You can change the shape (but not the size) of a floating toolbar by clicking and then dragging a side or corner of the toolbar. When the toolbar outline shows the desired shape, release the mouse button. You can reattach the toolbar to the top margin, or attach it to a side or the bottom margin by dragging it over a margin and releasing the mouse button. You cannot change the shape of the toolbar when it is attached to a margin.

Anchoring the Toolbar

The information in this section applies only if the toolbar is not attached to a margin.

In the upper-right corner of the toolbar is an icon that looks like a 4-headed arrow. This indicates that the toolbar is “attached” to the Reflection X window; that is, when you move the window, the toolbar also moves.

Click the icon once; it changes to a picture of a ship’s anchor: ⚓. Clicking here toggles the toolbar between being *anchored* to the nearest corner of the Reflection X window and being detached from it.

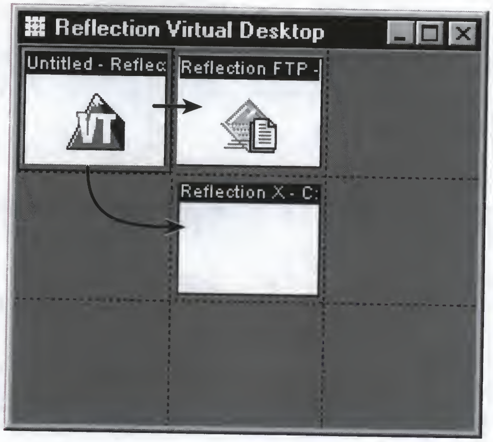
CHAPTER 13

The Reflection Virtual Desktop

Most Windows users run several programs at a time, and unless you have a very large display, your PC screen can begin to look very cluttered. The Reflection Virtual Desktop is a way to spread out your work and organize it. Your computer screen is like a viewing window (or *viewport*) for a much larger area.

The Virtual Desktop ships with Reflection X, but need not be used with Reflection X—use it to manage all your Windows applications.

When you start the Virtual Desktop, a window with a grid of nine rectangles is displayed. If you have applications on your Windows desktop when you start the Virtual Desktop, they are "stacked" in one area—spread them out by clicking and dragging:



By default, the virtual desktop stays on top of your other windows—you will probably want to move and/or resize it so that it doesn't interfere with your applications.

Configuring the Virtual Desktop

Click the right mouse button anywhere in the Reflection Virtual Desktop window, and then click Properties to open the Reflection Virtual Desktop Properties dialog box. See the online help in the Reflection Virtual Desktop for details on the various options.

Working in the Reflection Virtual Desktop

The easiest way to work in the Virtual Desktop is with the mouse (see the online help for information on keyboard control). Here's how to accomplish various tasks in the Virtual Desktop:

Move to another window or viewport

Single click on the area of the Virtual Desktop to which you want to move.

Drag a window to a new viewport

Press the left mouse button and hold it down to drag a window.

Drag a window and its "children" to a new viewport

Press Alt+left mouse button to drag a window and its associated windows ("children") to a new location on the desktop map.

Give another window priority

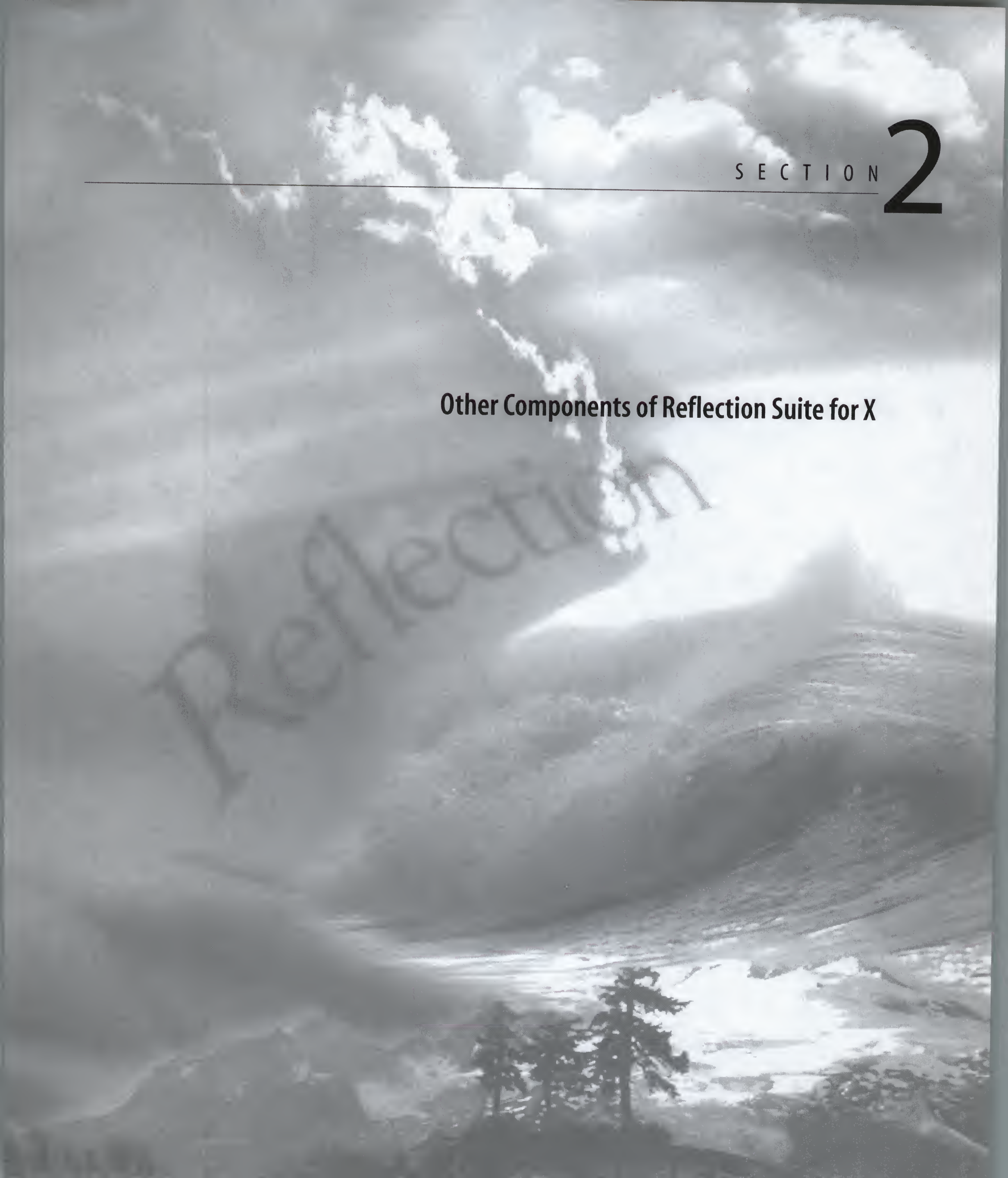
Activate an application window without changing to a new viewport by pressing Alt+left mouse (single-click). For example, if you are reading a web page, you can activate another application (a DOS box, or an application that's doing some processing). This gives the other application the highest priority, while you continue reading the web page.

Move the Virtual Desktop window

If the title bar is visible, the Virtual Desktop can be moved like any other Windows application. If the title bar is not visible, move the Reflection Virtual Desktop window by pressing the left mouse button on an unoccupied portion of the virtual desktop and dragging the window to a new location.

Display the Virtual Desktop menu

Click the right mouse button when the pointer is over the Virtual Desktop to see commands.



SECTION 2

Other Components of Reflection Suite for X

CHAPTER 14

OpenVMS and UNIX Connectivity: Reflection for UNIX and Digital

Reflection for UNIX and Digital (included with the stand-alone Reflection X and with the Reflection Suite for X) allows you to connect to a Digital or UNIX host over Telnet, LAT, or VT-MGR. Your PC can emulate the Digital Equipment Corporation VT420, VT320, VT220, VT102, VT101, VT100, and VT52 text terminals.

This chapter describes how to connect to a host or LAT service using Reflection's Connection Wizard or the Connection Setup dialog box, run several Reflection sessions at the same time, and disconnect from and reconnect to your last host session.

Connecting Using the Reflection Connection Wizard

The Reflection Connection Wizard guides you through the process of establishing a session with a host computer by asking a series of questions. You'll be asked the following:

- The connection method you are using, either over a network, using a modem, or directly through the PC's serial port. (If you select X client, the Client Wizard that is part of Reflection X will open.)
- The type of host computer you want to connect to.

  A host computer is typically a mainframe, minicomputer, or other centrally administered computer system. Depending on which Reflection connectivity products are installed on your PC, you can establish a session with the following types of hosts:

  - A Hewlett-Packard HP 3000 minicomputer
  - An IBM mainframe
  - An IBM AS/400 mid-range computer
  - A UNIX minicomputer

  - A Digital OpenVMS minicomputer
  - An electronic bulletin board service (BBS)
  - An X client
- The name or IP address of the host.
  - The Internet address (or "IP address") is a numeric value that identifies the host on a TCP/IP-based network. Each PC and host on the network must have a unique IP address. Your PC may be configured so that a non-numeric host name can be used to find the host IP address on your network. For example, your host computer may have an IP address of 152.183.13.6, but in your everyday work you refer to it by its host name of "Baldrick."
- Phone number (if you are using a modem).

If you don't know the answer to one of the wizard's questions, contact your system administrator.

Starting the Connection Wizard

To establish a host connection using the Reflection Connection Wizard:

1. Click New Session on Reflection's File menu.
2. Select the Reflection Connection Wizard option, then click OK.
3. After you answer the questions on each of the wizard's panels, click Next to continue to the next panel. If you want to go back to an earlier panel to change an answer, click Back. To exit the wizard before finishing, click Cancel. For help with any of the Reflection Wizard's panels, click Help.

Note: You can also start the wizard by clicking the Reflection Connection Wizard icon in the Wizards folder (which is contained in the Reflection folder). ▲

Connecting Over a Network

You can connect to the host over a network using Reflection's Best Network option, which automatically chooses the best transport to the host, or by choosing a transport in the Connection Setup dialog box.

For a list of supported networks, search for *Supported networks* in the Reflection for UNIX and Digital online help.

Network Connections (Best Network)

To establish a host connection after starting Reflection, press Enter ↵ in the terminal window. Reflection looks for the Telnet, LAT, and VT-MGR network protocols.

If you have multiple protocols loaded, the order in which each available protocol attempts a connection to the host, service, or port you specify is shown in the Connection Setup dialog box. Reflection will attempt a Telnet connection, followed by LAT, then VT-MGR. Once a connection is made, that protocol is then listed first for subsequent connections.

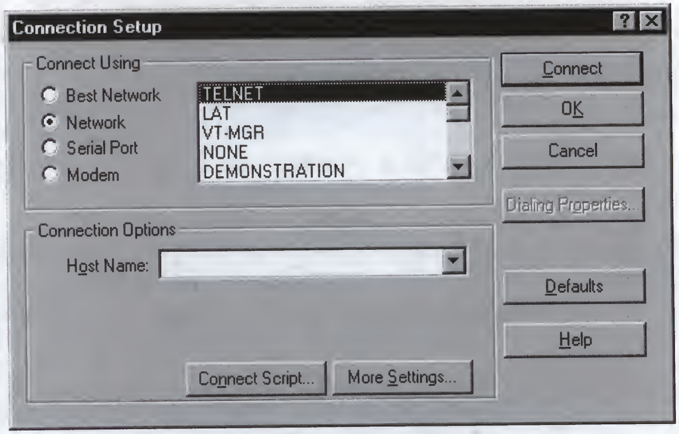
For example, if you have both LAT and Telnet installed, Telnet is always detected by the Best Network connection method first and will always be the protocol selected in Reflection for UNIX and Digital. (This does not mean you cannot connect using LAT if you have both protocols installed; use the Connection Setup dialog box to specify a different protocol.)

If you have a different type of network, or are connecting over a serial port (either directly or via modem), you connect by selecting the proper options in the Connection Setup dialog box.

Connecting Using the Connection Setup Dialog Box

When you want to choose a specific protocol for your connection:

1. On the Connection menu, click Connection Setup to open the Connection Setup dialog box.
2. Select **Network** in the **Connect Using** box; the dialog box changes to look like this:


Connection Setup
Connect Using
○ Best Network
● Network
○ Serial Port
○ Modem
TELNET
LAT
VT-MGR
NONE
DEMONSTRATION
Connection Options
Host Name:
Connect Script...
More Settings...
Connect
OK
Cancel
Dialing Properties...
Defaults
Help

3. Select a connection option from the list of available network connections (or select DEMONSTRATION to examine Reflection's features without establishing a host connection).
4. Fill in the appropriate information in the **Connection Options** box, such as a host name.
5. Click Connect.
6. Follow the prompts and log in.

Connecting Over a Modem

To dial a host from Reflection, you can dial the modem manually or automate the procedure by using a settings file.

Connecting by Dialing the Modem Manually

Here's how to dial a modem manually:

1. On the Connection menu, click Connection Setup to open the Connection Setup dialog box.
2. Select **Modem** in the **Connect Using** box.
3. If you have not already added a modem to Reflection, click the Add button and install a modem using the Install New Modem Wizard.
4. In the **Phone Number** box, enter the telephone number of the host you want to connect to, then click Dial.

The Dialing in Progress dialog box shows that Reflection is dialing your host. This dialog box closes when the modem connection is made. When your host prompt appears, log in.

Connecting Over a Modem Using a Settings File

Once you create a modem connection, you can save that connection as a settings file. Connecting to a host is then as simple as opening that file.

To save a modem connection as a settings file:

1. On the Connection menu, click Connection Setup to open the Connection Setup dialog box.
2. Verify that your modem connection settings are correct.

Tip: To make your modem settings files easy to find, give them descriptive names and keep them in a unique folder under the Reflection folder.

3. On the File menu, click Save As to open the Save Settings dialog box. Reflection proposes a name for your saved connection based on the telephone number you specified in the Connection Setup dialog box. If you do not want to use the proposed name, type or select another name in the **File name** box.
4. In the **Save as type** list, select Connection (*.rco).
5. Click OK to save your modem connection as a connection settings file.

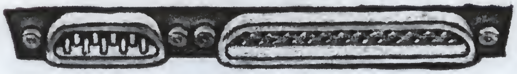
Now, to establish a modem connection using a settings file, on the File menu, click Open. Then, select the connection settings file from the Open Settings dialog box using the **Files of type** list, and click Open.

Connecting Over a Serial Port

You can establish a direct physical connection to a host using a cable and a serial port (for example, COM1) on your PC. Or, if the host is located at a distance, you can use modular cabling, where installed. Modular cabling uses a telephone-type jack (which accepts a modular RJ-11 or RJ-45 plug, for example) on a wall plate. You will need an adapter to connect to this type of jack—see your system administrator for information about your cabling system.

Usually, the COM ports on your PC look like this:

25-pin serial port



9-pin serial port

Parallel printer port

To use the PC's serial port, you may need a standard 9-pin to 25-pin adapter.

To connect to a host over a serial port:

1. Start Reflection.

   If you already have an active connection, on the Connection menu, you must click Disconnect (or, on the File menu, click New Session to start a new session).

2. In the Connection menu, click Connection Setup to open the Connection Setup dialog box.
3. In the **Connect Using** box, click Serial Port and select the communications port on your PC that is physically connected to the host computer.
4. Set the communication port's values in the **Baud Rate** and **Parity** boxes.
5. Click Connect, and follow the host prompts to log in.

Streamlining the Connection Process

Reflection for UNIX and Digital includes several features to help you streamline the host connection process:

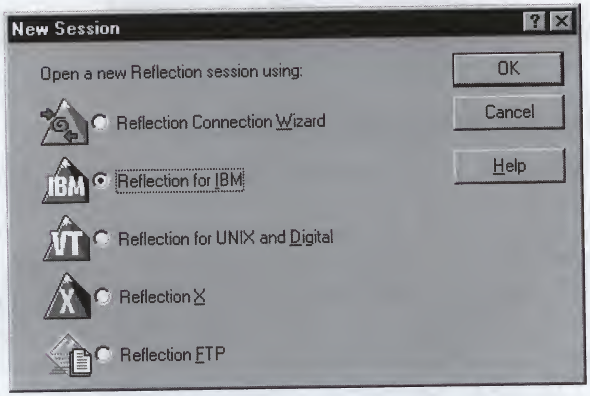
- **Windows Shortcuts**—During Setup you are given the option of choosing where you want Reflection shortcuts stored on your PC. Now, when you use the Save As command on the File menu to save a settings file, the file is saved as a Windows shortcut (use the Shortcut button to tell Reflection where to save the shortcut). Click the shortcut to start a Reflection session. For more information, search for *Shortcut, specifying location of* in the Reflection for UNIX and Digital online help.
- **Reflection Basic**—Record a Reflection Basic script that starts an HP or UNIX host connection and logs in to the host automatically. For more information, search for *Script, overview* in the Reflection for UNIX and Digital online help.

Multiple Sessions

Reflection for UNIX and Digital lets you create and maintain up to 16 host connection sessions. These sessions run independently; each within its own window—if you want to maintain four host connections at the same time, start Reflection for UNIX and Digital four times; four Reflection windows will open.

To start another session when working in Reflection, click the icon in the Reflection folder group. However, you can also start Reflection within an active session:

1. After establishing your first host connection, on the File menu, click New Session. If you have all components of Reflection Suite for X installed, the New Session dialog box looks like this:


New Session
Open a new Reflection session using:
○ Reflection Connection Wizard
● Reflection for IBM
○ Reflection for UNIX and Digital
○ Reflection X
○ Reflection FTP
OK
Cancel
Help
IBM
VT
X

2. Make your selection, then click OK. Reflection starts in an "Untitled" session (to load a settings file, on the File menu, click Open).
3. Press Enter ↵, then follow the prompts and log in.

Disconnecting from a Host

To disconnect from a host:

- On the Connection menu, click Disconnect.

If you want Reflection to close after you disconnect from the host, run the Reflection Basic script file called Quit.rbs located in the User folder. For more information, search for *Exit, automatically on disconnect* in the Reflection for UNIX and Digital online help.

Reconnecting to Your Last Connection

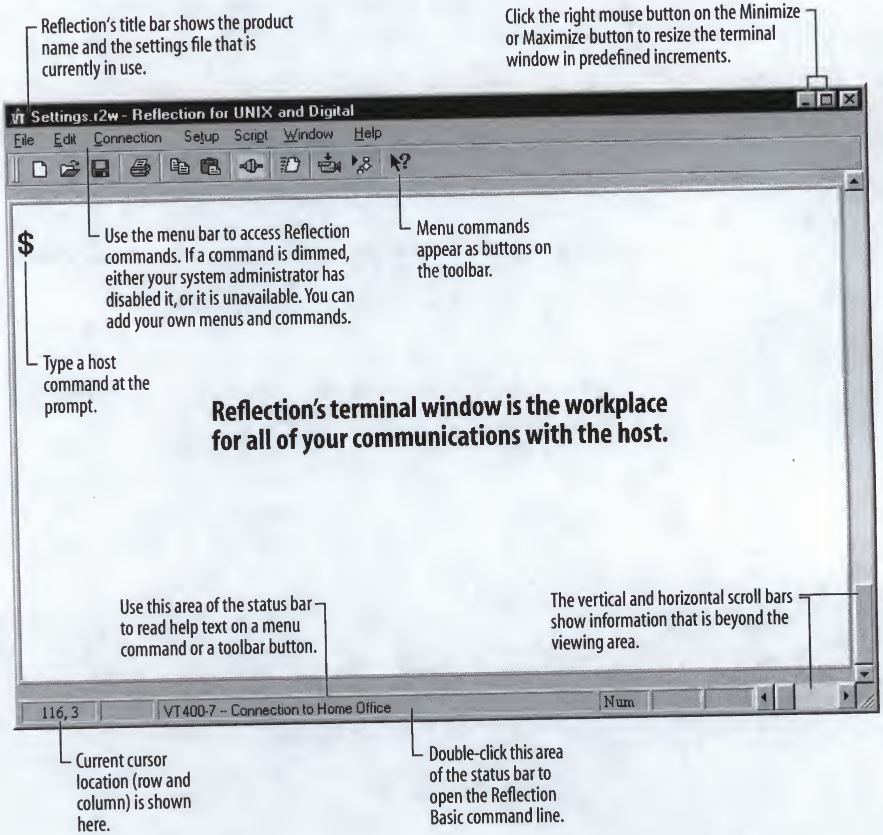
There are two ways to reconnect to your last host connection:

- Press Enter ↵. (You may need to specify a host or service before connecting.)
- On the Connection menu, click Connect.

When Reflection is not connected to a host, the name of the most recent connection appears alongside the Connect command as a placeholder until your next connection replaces it.

Working in the Terminal Window

The terminal window in Reflection for UNIX and Digital is where you interact with the host computer; it acts like the screen of a terminal. While it looks to the host like a standard terminal, Reflection takes full advantage of the Windows interface. The Reflection for UNIX and Digital terminal window looks like this:


Settings.r2w - Reflection for UNIX and Digital
File
Edit
Connection
Setup
Script
Window
Help
$
116, 3
VT400-7 -- Connection to Home Office
Num

Reflection's title bar shows the product name and the settings file that is currently in use.

Click the right mouse button on the Minimize or Maximize button to resize the terminal window in predefined increments.

Use the menu bar to access Reflection commands. If a command is dimmed, either your system administrator has disabled it, or it is unavailable. You can add your own menus and commands.

Menu commands appear as buttons on the toolbar.

Type a host command at the prompt.

Reflection's terminal window is the workplace for all of your communications with the host.

Use this area of the status bar to read help text on a menu command or a toolbar button.

The vertical and horizontal scroll bars show information that is beyond the viewing area.

Current cursor location (row and column) is shown here.

Double-click this area of the status bar to open the Reflection Basic command line.

System administrators can control access to specific menu commands using the Reflection Profiler; these commands still appear on Reflection's menus, but are dimmed. When you highlight a command that has been disabled, the status line text at the bottom of the terminal window reads:

```
Disabled by your system administrator
```

If you need to access a command that has been disabled, contact your system administrator (please do not contact WRQ's technical support; there is nothing they can do to reverse on-site customization of the Reflection interface).

Customizing the Terminal Window

Reflection's terminal window can be customized to suit your preferences. For information on how to use these features, see the Reflection for UNIX and Digital online help:

- **The Status Bar**
  Located at the bottom of the terminal window, the status bar lets you determine the toggle state of selected keys, the current host connection, and cursor location.
- **The Command Line**
  When you press Alt+L (or double-click the Reflection terminal window status line), the status bar is replaced by the Reflection Basic command line. Use this to execute individual Reflection Basic commands. For more information, search for *Reflection Basic, using the command line* in the Reflection for UNIX and Digital online help.
- **The Toolbar**
  The default toolbar contains buttons that execute menu commands. You can change the current button set, customize existing buttons, and move the toolbar to any location on the Windows desktop or within the terminal window.
- **Title Bar Text**
  By default, the terminal window title bar shows an "Untitled" Reflection session (unless a settings file is loaded and its name is displayed). However, you can change this text using the Display Setup dialog box. Or, include variable information, such as connection state, transport name or host name as examples.
- **Terminal Window Font and Colors**
  The display characteristics of Reflection's terminal window are customized using the Display Setup dialog box. Use this dialog box to change font type and color, screen color, and other items.

Working with Text in the Terminal Window

There are two terms used frequently in describing the terminal window in Reflection:

The Display

In Reflection, the display is like the screen of a terminal. The host can position the cursor anywhere on the display, and can write, erase, and alter characters at the cursor position.

Display Memory

Display memory contains both the information visible on the display and information that has scrolled off of the display. Display memory is a log of what has recently been sent from the host to the PC. Display memory stores only text; if you have graphics on the display, they are *not* scrolled into display memory.

Note: The VT terminals Reflection emulates have no display memory. Because display memory is unique to Reflection, OpenVMS hosts do not have access to it, so the host cannot change the contents of display memory. ▲

When you first start Reflection, there is nothing on the display or in display memory. Once you start working, data starts accumulating on the display. When the display is full and lines begin to scroll off the top, display memory starts to fill up.

Pausing Data that Scrolls onto the Display

As text scrolls onto the display, either from the host or from a Reflection command, it often scrolls faster than you can read it. If you want to pause the data that scrolls onto the display, press ScrollLock or use the keystroke Ctrl+S to pause scrolling, and the keystroke Ctrl+Q to resume scrolling.

Reviewing Data in the Terminal Window

To review the data in display memory, click in the vertical scroll bars.

When you use the scroll bars, the Hold indicator in Reflection's status bar is displayed. This temporarily freezes text sent by the host so you can view text in the display and display memory.

If the terminal window is sized so that a portion of the display is obscured (for example, in 132-column mode with a narrow window), you can scroll by clicking in the horizontal scroll bar. If you are accustomed to using the keyboard instead of the scroll bars, see the online help for the corresponding keyboard shortcuts: search for *Display memory, reviewing data* in the Reflection for UNIX and Digital online help.

Selecting Text in the Terminal Window

The following procedures show some different ways to select text using the mouse in the terminal window (these procedures assume that you haven't remapped the mouse). After releasing the mouse button, the Shift key can be used to extend the selection with subsequent clicks or drags. To select everything you see on the screen and the information that has scrolled off it, click the Select All command on the Edit menu.

To select any portion of a line:
Point at the letter where you want to start the selection, then hold down the left mouse button and drag.

To select a complete word:
Point at the word and double-click the left mouse button.

To select a complete line:
When you move the mouse pointer to the left margin of the terminal window, the pointer changes into an arrow that points up to the right. This allows you to select a line by clicking the left mouse button, or to select multiple lines by dragging the pointer down in the left margin. Clicking and dragging extends the selection a whole line at a time.

To select a rectangular portion of text:
Hold down the Ctrl key and drag the mouse pointer while holding down the left mouse button.

Working with the Mouse

Your mouse may have more than two buttons. For a four-button mouse, only the primary (left) and secondary (right) button are used in Reflection. In general, the left mouse button is used to select items in Reflection—if you have a one-button mouse, this always acts as the left mouse button.

Reflection supports the Microsoft IntelliMouse wheel for scrolling purposes and as the center button of a three-button mouse device. You must select the **Show 3 Buttons** check box in the Mouse Map Setup dialog box to enable this functionality.

For instructions on mapping the mouse, see page 115.

Using the Mouse icon in Control Panel, you can adjust the mouse speed. Left-handed users can switch the functionality of the right and left mouse buttons.

Using the Right Mouse Button

The right mouse button performs special functions in Reflection's terminal window:

- Using the right mouse button to click in the terminal window opens the Reflection terminal window shortcut menu. Use this menu to simulate pressing the Enter ↵ key, copy and paste, show or hide toolbars or the Reflection terminal keyboard, or open the Display Setup dialog box.
- Use the right mouse button to click on a word or string of text to transmit the string to the host, followed by a carriage return (CR). When you use the right mouse button to click on a blank, just a CR is sent to the host. If you do not want a CR automatically appended to the word, hold down Shift while you click with the right mouse button.
- Clicking the right mouse button while holding down the Ctrl key sends a sequence of arrow keys to the host program, which moves the host cursor to the place where you clicked. For example, if you are in a host editor and want to move the editor's cursor using the mouse, hold down Ctrl and use the right mouse button to click where you want the cursor to be.

  Note: You can only move the cursor to another position on the display; you cannot move it into display memory. ▲
- Using the right mouse button to click on the Minimize and Maximize buttons in the terminal window decreases and increases the size of the window in increments.
- Clicking the right mouse button on the toolbar displays a toolbar shortcut menu.
- Clicking the right mouse button on Reflection's title bar displays the system menu, which lets you move, resize, or close the terminal window.

Mouse Mapping

With Reflection, you can associate mouse "chords" with commands in a process known as mouse mapping. This feature extends to both two- and three-button mouse devices, and includes limited support for Microsoft IntelliMouse. Use the Mouse Map Setup dialog box to map mouse chords to commands, or to find out how your mouse is currently mapped.

The Reflection for UNIX and Digital online help describes procedures for mapping a mouse chord to various functions:

- Transmit a string: See *Mouse mapping, string to transmit (how to map)*
- Execute a script: See *Mouse mapping, Reflection Basic script (how to map)*
- A built-in function: See *Mouse mapping, built-in functions (how to map)*
- A Reflection Basic command: See *Mouse mapping, Reflection Basic command (how to map)*
- Multiple commands: See *Mouse mapping, mapping a mouse chord to multiple commands*

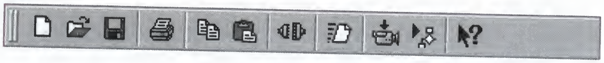
Working with the Toolbar

The toolbar is a panel of buttons you can configure to simplify tasks in Reflection for UNIX and Digital. Reflection supports multiple toolbars, allowing you to open a toolbar or toolbars other than the default Standard predefined toolbar (shown below).

Located by default under Reflection's menu bar, the toolbar uses a predefined button set that you can customize using the Toolbar Setup dialog box. For procedures on how the toolbar can be customized to streamline your work, see *Toolbar* in the online help.

You can create a partial settings file that opens any toolbar you choose within the current settings file. For more information, search for *Toolbar, creating a toolbar partial settings file* in the online help.

When you first start Reflection for UNIX and Digital, the Standard predefined toolbar is automatically displayed:



The toolbar can be either visible or hidden: right-click the desktop and point to Toolbars; click a toolbar name to show or hide it.

Working with Hotspots

Hotspots are buttons that appear over text in terminal sessions. Typically, clicking a hotspot transmits a terminal key or command to the host. As you work with host data in Reflection's terminal window, anything that's displayed in button format (that is, anything that looks like a button you can click) is a hotspot.

Use the Defined Hotspots tab in the Hotspot Setup dialog box to define hotspots and the actions associated with them. To trigger a hotspot, simply click it with the left mouse button. Clicking hotspots allows you to issue commands with the mouse instead of the keyboard.

Enabling and Showing Hotspots

Hotspots are only available when they are enabled. To enable hotspots:

1. On the Setup menu, click Hotspot, then click the Settings tab.
2. Select the **Enable Hotspots** check box and click OK.

By default, the **Enable Hotspots** check box is cleared; in this case, you can still define and maintain your hotspot configuration, but hotspots won't work or display on your screen.

Defining Hotspots

To define a hotspot:

1. On the Setup menu, click Hotspot, then click the Defined Hotspots tab.
2. Click New to open the New Hotspot dialog box.
3. Type a text string, up to 80 characters, in the **Hotspot Text** box to identify the hotspot. Reflection creates a hotspot wherever this text string is encountered in your host application.
4. In the **Help Text** box, enter the text that appears in the status bar.

5. Select the **Match Case** check box if you want the hotspot to be case sensitive. For example, if you define the hotspot "Login" and select the **Match Case** check box, then "login" will not be a hotspot.
6. Select the **Match Whole Word Only** check box if you want to separate the hotspot from any surrounding text (the whole word is delimited by any non-alphanumeric character or spaces). For example, if you define the hotspot "host" and select the **Match Whole Word Only** check box, then the words "hostfile" and "unixhost" will not be hotspots, but "\host:" will be a hotspot.
7. Select the **Match Until White Space** check box to define the end of a hotspot as the white space created by pressing the Spacebar key. This allows you to define hotspots that start with a common string, but vary. An example of this is the default hotspot for http:, which launches your browser and locates the web site indicated.
8. To make the hotspot specific to a screen column, select the **At Position** option and enter a column number.
9. Specify the command that Reflection executes (when you click the hotspot):
   - ▲ Keep **Transmit String** selected and type the command directly in the text box.
   - ▲ Select the **Script** option, then click Browse to assign a Reflection Basic script to the hotspot.
   - ▲ Select **Commands** to assign a Reflection Basic or host command to a hotspot.

Hotspot information is saved with all other configuration information to a settings file when you save the session with the Save command on the File menu. You can also save just hotspot configuration information in a partial settings file with the extension .rhs, making it possible to create a hotspot and import it into other sessions.

Using the Graphical Terminal Keyboard

Whenever the host prompts you to press a key you can't find or don't recognize on your PC keyboard, use Reflection's graphical terminal keyboard to send the keystroke. Using this feature, you can bypass your PC keyboard and transmit a keystroke to the host using your mouse.

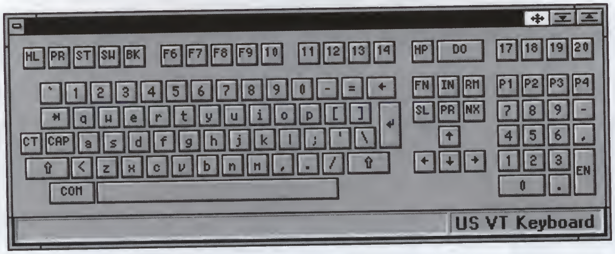
Displaying the Graphical Terminal Keyboard

The terminal keyboard can be either visible or hidden. Click the right mouse button in the terminal window and click Terminal Keyboard on the shortcut menu to toggle the terminal keyboard into or out of view.

With the terminal keyboard visible, click a key once to see the key's function in the *status bar* in the lower-left corner. The lower-right corner shows the keyboard type, which you can change in the Keyboard Setup dialog box. You can still choose Reflection menu commands while the graphical terminal keyboard is open.

The type, size, and location of the terminal keyboard is saved whenever you save your settings file.

Reflection's terminal keyboard looks like this:


HL PR ST SW BK F6 F7 F8 F9 10 11 12 13 14 HP DO 17 18 19 20
` 1 2 3 4 5 6 7 8 9 0 - = ← FN IN RM P1 P2 P3 P4
→ q w e r t y u i o p [ ] ↵ SL PR NX 7 8 9 -
CT CAP a s d f g h j k l ; ' \ ↑ 4 5 6 ,
⇧ < z x c v b n m , . / ⇧ ← ↓ → 1 2 3 EN
COM 0 .
US VT Keyboard

CHAPTER 15

Connecting to Mainframe and AS/400 Hosts with Reflection for IBM

With the Telnet (TN) version of Reflection for IBM, you can connect to IBM mainframes over the Telnet and Telnet Extended transports, and make AS/400 host connections over Telnet. This chapter describes how to connect your PC to a mainframe or AS/400 system by using the Reflection Connection Wizard or by configuring host sessions from the Session Setup dialog box, run multiple sessions at the same time, streamline the connection process, disconnect from a host session, and reconnect to your last host session.

Using Reflection for IBM Connection Transports

These are the transport and session types supported by the Telnet version of Reflection for IBM:

Transport	IBM 5250 Terminal	IBM 5250 Printer	IBM 3270 Terminal	IBM 3270 Printer
Telnet	✓	▨	✓	✓
Telnet Extended		▨	✓	✓
Demonstration	✓	▨	✓	

This version of Reflection for IBM does not allow you to start 3270 or 5250 sessions over other transports even if they are enabled on your computer or the host. For example, if you specify MPTN as your **Transport Type** in the Session Setup dialog box, this version of Reflection for IBM will display an error message instead of attempting to start a 5250 session with a host.

For descriptions of each available transport type and associated requirements, search for *Transport type* in the Reflection for IBM online help.

Using the Reflection Connection Wizard

The Reflection Connection Wizard takes much of the guesswork out of establishing a session with a host computer, and works with both Reflection for IBM and Reflection for UNIX and Digital. For a description of how to use the Connection Wizard, see pages 101 through 102.

Connecting Using Telnet

In the Session Setup dialog box, you can configure Reflection for IBM to connect to either an IBM mainframe or an AS/400 system over the Telnet transport. The procedure is similar for either host.

To connect to an IBM mainframe or AS/400 system over Telnet:

1. On the Connection menu, click Session Setup. The appearance of the Session Setup dialog box varies by session and transport type.
2. Select a **Session Type**.
    - To connect to an IBM mainframe host, select IBM 3270 Terminal or IBM 3270 Printer. For more information about 3270 printer sessions, see the Reflection for IBM online help.
    - To connect to an AS/400, select IBM 5250 Terminal. IBM 5250 printer sessions are not available over Telnet.
3. Select Telnet as your **Transport Type**.
4. Select a **Model ID**. The list of available models varies, depending on your entries in the **Session Type** and **Transport Type** boxes.
5. Type the name of the host you want to connect to in the **Host name or IP address** box. You can also enter a valid Internet address (such as `100.01.02.03`) or a name that a domain name server can resolve.
6. Click Connect. After the Session Setup dialog box closes, you will see a host logon screen.

Connecting to an IBM Mainframe Using Telnet Extended

The Telnet Extended transport is only available for IBM 3270 sessions to an IBM mainframe. In the Session Setup dialog box, you can configure an IBM 3270 terminal or an IBM 3270 printer session over the Telnet Extended transport.

To connect to an IBM mainframe over Telnet Extended:

1. On the Connection menu, click Session Setup. The appearance of the Session Setup dialog box varies by session and transport type.
2. Select a **Session Type**: IBM 3270 Terminal or IBM 3270 Printer.
3. Select Telnet Extended as your **Transport Type**.
4. Select a **Model ID**. The list of available models varies, depending on your entries in the **Session Type** and **Transport Type** boxes.
5. Type the name of the host you want to connect to in the **Host name or IP address** box. You can also enter a valid Internet address (such as `100.01.02.03`) or a name that a domain name server can resolve.
6. Enter a specific device name to connect to in the **Device name** (3270 terminal sessions) or **Host LU name** (3270 printer sessions) text box (optional). For 3270 printer sessions, also specify a **Connection type**: Connect or Associate. For more information about 3270 printer sessions, see the Reflection for IBM online help.
7. Click Connect. After the Session Setup dialog box closes, you'll see a host logon screen.

Streamlining the Connection Process

Reflection includes several features to help you streamline the host connection process:

- **Settings Files**
  After configuring your connection settings, save them to a settings file that records your Reflection configuration. Whenever you want to connect to a particular host, you can load the settings file that contains the unique session setup for connecting to the host. For more information about settings files, see page 131.

- **Windows Shortcuts**
  You can create your own settings file and associate it with a Windows shortcut to make a quick connection. For more information, see page 131.
- **The Auto Connect Option**
  Selecting the **Auto connect** check box in the Session Setup dialog box and then saving your settings file can speed up connection time. When you start a 3270 or 5250 session with that settings file (for example, with a Windows shortcut) or load the settings file after starting Reflection, you'll connect automatically without needing to configure your connection in the Session Setup dialog box.
- **Reflection Basic**
  Create a Reflection Basic script that starts a 3270 or 5250 session, connects to a host, and logs in to the host automatically. To associate a script with connection settings, specify a **Connect script filename** in the Session Setup dialog box. For more information about Reflection Basic, see the online help.

Multiple Sessions

Like Reflection for UNIX and Digital, Reflection for IBM lets you create and maintain up to 16 host connection sessions. These sessions run independently, each within its own window. See page 108 for information on starting additional sessions.

Disconnecting from a Host

To disconnect from a host, click Disconnect on the Connection menu. This command ends your connection to the host and leaves Reflection open.

Reconnecting to Your Last Connection

There are several ways to reconnect to your last host connection:

- Press Enter ↵. (You may need to specify a host or service before connecting.)
- On the Connection menu, click Connect.

- In 3270 terminal sessions over Telnet, select the **Auto reconnect** check box in the Session Setup dialog box for Reflection to automatically attempt to reconnect as soon as the host connection is terminated by the host.

When Reflection is not connected to a host, the name of the most recent connection appears alongside the **Connect** command on the Connection menu as a placeholder until your next connection replaces it.

Hotspots and Hotlists

Entering data during a 3270 or 5250 terminal session can be simplified with hotspots and hotlists. These tools make working in the terminal window more like working in a typical Windows dialog box. Use them to automate the entry of text in input fields, perform repetitive commands quickly and easily, and customize Reflection for your host environment. See the Reflection for IBM online help for more information on these two features.

Using Reflection as a 3270 Terminal

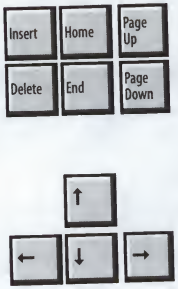
When connected to an IBM mainframe, your PC operates like an actual 3270 terminal. This means you can use the same keystrokes and functions from your PC to interact with an IBM mainframe. Reflection also displays the 3270 Operator Information Area when you are connected to an IBM mainframe.

Using the Keyboard

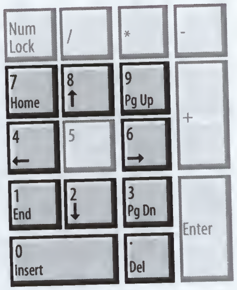
When you first run Reflection for IBM, certain keystrokes are linked to certain functions by default. The mapping assumes an Enhanced 101-key or 102-key keyboard. This default keyboard mapping supports three types of functions:

- *Host functions*, like Clear (Ctrl+F2) and PA1 (PgUp), have a specific meaning in the 3270 environment.
- *Reflection functions*, like Connect (Alt+C) and Next Window (Alt+N), are functions that let you control Reflection.
- *Windows functions*, like Display Start Menu (Ctrl+Esc) and Open the Window Menu (Alt+Spacebar), apply in Windows applications.

Some keys also appear on both the cursor pad and the keypad, as shown below.


Insert
Home
Page Up
Delete
End
Page Down
↑
←
↓
→

Cursor Pad

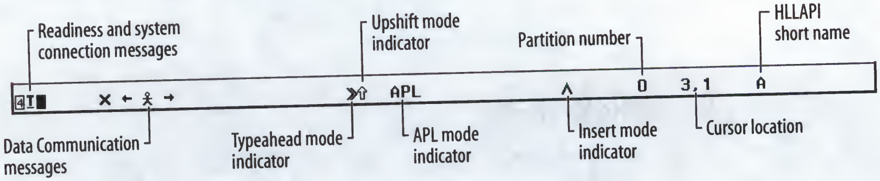

Num Lock
/
*
-
7 Home
8 ↑
9 Pg Up
+
4 ←
5
6 →
1 End
2 ↓
3 Pg Dn
Enter
0 Insert
. Del

Keypad

Information on default 3270 keyboard mapping is available in the online help. For information on Windows functions, see your Microsoft Windows documentation. Descriptions of all 3270 functions are also available in the online help.

The 3270 Operator Information Area

During a 3270 session, Reflection shows operation and status messages in an Operator Information Area at the bottom of the terminal window. This area functions like that on actual 3270 display stations.


Readiness and system connection messages
Upshift mode indicator
Partition number
HLLAPI short name
APL
0
3,1
A
Data Communication messages
Typeahead mode indicator
APL mode indicator
Insert mode indicator
Cursor location

Messages

For a description of Readiness and System Connection messages, Data Communications messages, Shift and Modes messages, as well as Printer Status messages, search for *Operator Information Area in* the online help.

Partition Number

The 3270 protocol allows for up to 255 partitions (partitions 0–254). If more than one partition is displayed in the terminal window, the number indicates which partition the host cursor is in.

Cursor Location

Shows the position of the host cursor (in the current partition) in row, column format. For example, in a 3270 model 2 screen, if the cursor is in the upper-left corner, the position is identified as `1,1`, and if the cursor is in the lower-right corner, the position is identified as `24,80` (assuming the current partition is the same size as the terminal window).

HLLAPI Short Name

This is an identifier used by a HLLAPI application to identify a particular host session. For more information on HLLAPI, search for *HLLAPI* in the online help or refer to the Reflection for IBM *System Administrator Guide.*

Using Reflection as a 5250 Terminal

When connected to an AS/400, your PC operates like an actual 5250 terminal. This means you can use the same keystrokes and functions from your PC to interact with an AS/400.

Reflection also allows you to display different status lines at the bottom of the terminal window and to enter diacritical characters in the AS/400 host screen, such as a grave accent (è) or a tilde (ñ). For instructions on how to enter diacritical characters, search for *Diacritical characters* in the Reflection for IBM online help.

Using the Keyboard

When you first run Reflection for IBM, certain keystrokes are linked to certain functions by default. The mapping assumes an Enhanced 101-key or 102-key keyboard. This default keyboard mapping supports three types of functions:

- *Host functions*, like Clear (Pause) and Reset (left Ctrl) have a specific meaning in the 5250 environment.

  Functions identified as "word processing" can be used in word processing mode on the AS/400 (Text Assist). Executing one of these functions when Reflection is not in word processing mode has no effect.

When using Text Assist, you can select the level of assistance you want displayed on your screen by pressing F21 in any of these three OfficeVision screens:

  - Send Note
  - Work with Mail
  - Work with Documents in Folders

See your host documentation for information on word processing mode.

- *Reflection functions*, like Connect (Alt+C) and Next Window (Alt+N), are functions that let you control Reflection.
- *Windows functions*, like Display Start Menu (Ctrl+Esc) and Open the Window Menu (Alt+Spacebar), apply in Windows applications.

Information on default 5250 keyboard mapping is available in the online help. For information on Windows functions, see your Microsoft Windows documentation. Descriptions of all 5250 functions are also available in the Reflection for IBM online help.

Status Lines

When connected to an AS/400 during a 5250 session, you can configure Reflection to show any of three status lines at the bottom of the terminal window.

To configure the status line:

1. Start a 5250 session in Reflection for IBM.
2. On the Setup menu, click Terminal.

3. Select the desired status line from the **Status line** list. The three status lines are:

3488 Status Line	This is the default status line. The 3488 status line uses graphical symbols to represent various host conditions and is based on the status line used on recent 5250 terminals from IBM.
5250 Status Line	This status line uses character pairs to represent various host conditions—the characters are always shown but appear in inverse video when the condition is true. For example, when the system is not available, the letters `SA` appear in regular video. When the system is available, the letters `SA` appear in inverse video.
Debug Status Line	If you contact WRQ technical support, you may be asked to use the debug status line to help diagnose a problem. Otherwise, the debug status line is of use only to users with a thorough knowledge of the 5250 data stream.

4. Click OK.

For a description of the different codes and symbols that may appear in each status line, search for *Status line* in the online help.

Using Reflection as a 3179-G Terminal

This section applies to 3270 terminal sessions only.

With Reflection you can emulate a 3179-G terminal. You can run any host application that uses IBM's Graphics Data Display Manager (GDDM) library (for example, SAS or ImageView).

The following terminal models and screen sizes are supported:

- Model 2 (24x80)
- Model 3 (32x80)
- Model 4 (43x80)
- Model 5 (27x132)

This includes, but is not limited to, the 3179-G family of terminals. Any graphics terminal that supports the primary features of the 3179-G is also supported.

Configuring Reflection for Graphics Emulation

To configure Reflection to emulate a 3179-G terminal:

1. On the Connection menu, click Session Setup.
2. Select **IBM 3270 Terminal** as your **Session Type**.
3. Select the **Model ID** for the screen size you want to emulate.
4. Select the appropriate **Transport Type** and options for the host you are connecting to.
5. Select the **Graphics Enabled** check box.
6. Select any other connection options you want to use for this session.
7. Click OK or Connect.

You are now ready to connect to the host and emulate a 3179-G terminal.

For more information on setting up sessions, search for *Session setup* in the Reflection for IBM online help.

Printing Graphics

When emulating a 3179-G terminal, you can print host graphics with your local printer. Follow these steps:

1. While the graphic image you want to print appears in the terminal window, click Print on the File menu to open the Print dialog box.
2. Specify the print options.
3. Click OK.

   The image prints. Any part of the image that does not appear in the terminal window does not print.

For more information on the options available in the Print dialog box, search for *Printing* in the Reflection for IBM online help.

Saving Graphics

You can save host graphic images to a Windows bitmap (.bmp). To do so:

1. While the graphic you want to save appears in the terminal window, click Save Display As on the File menu to open the Save Display dialog box.
2. Specify the save options.
3. Click OK.

   The graphic image as it appears in the terminal window is saved to disk. Any part of the image that does not appear in the terminal window is not saved.

Working with the Graphics Cursor

When you are working with graphics in a 3179-G terminal session, the host application makes available a graphics cursor. Reflection allows you to configure the size, shape, and color of the graphics cursor. To configure the graphics cursor:

1. On the Setup menu, click Terminal to open the 3270 Terminal Setup dialog box.
2. Specify a **Cursor shape**.
3. Click OK.

   If you select Color Crosshair as the **Cursor shape**, you can change its color by selecting a color from the **Crosshair color** list in this dialog box.

APL Support

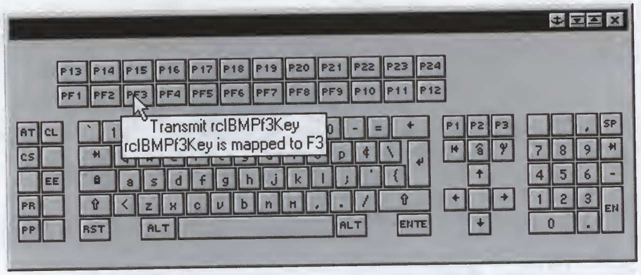
APL is a programming language invented at IBM in the 1960s, best known for its use of unusual, non-ASCII symbols. While support for the APL character set no longer requires a graphics terminal, APL and graphics have been historically linked because originally APL was only available on graphics terminals.

Reflection supports the APL character set and keyboard in 3270 terminal sessions (both 3179-G and text-only 3270). For complete information on Reflection's support for the APL character set and keyboard, search for *APL* in the Reflection for IBM online help.

Using the Graphical Terminal Keyboard

Whenever the host prompts you to press a key you can't find or don't recognize on your PC keyboard, use Reflection's graphical terminal keyboard to send the keystroke. To toggle a graphical representation of a terminal keyboard in and out of view, click Terminal Keyboard on the Window menu.

You do not need to use the terminal keyboard to work in the terminal window. But if you're accustomed to working with a host keyboard, Reflection's terminal keyboard can ease the transition from a terminal to a PC. The terminal keyboard also provides useful information about how the keys on your PC keyboard map to the keys on a terminal keyboard.



Transmit rcIBMPf3Key
rcIBMPf3Key is mapped to F3

P13 P14 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24
PF1 PF2 PF3 PF4 PF5 PF6 PF7 PF8 PF9 P10 P11 P12
AT CL CS EE PR PP
RST ALT ALT ENTE
P1 P2 P3
SP EN

For more information about how to work with the terminal keyboard, search for *Terminal keyboard* in the online help.

CHAPTER 16

Using Settings Files to Save Your Configuration

When you customize Reflection for IBM and Reflection for UNIX and Digital, the configuration can be saved as a *settings file*. A settings file is a record of settings, such as your host connection, display preferences, and file transfer settings. Any changes you make to Reflection settings are temporary; Reflection uses them only until you change them again or exit Reflection. To record changes permanently, save them to a settings file.

Reflection lets you save and use two different kinds of settings files:

- Complete settings files, which contain information specified in Reflection dialog boxes, as well as information provided by links to partial settings files. (Creating links between complete and partial settings files is a feature of Reflection for UNIX and Digital only.)
- Partial settings files, which contain information limited to a particular set of settings. For example, you can save a partial settings file that contains only color or toolbar settings.

Once you save a settings file, you can duplicate a Reflection session at a later time without having to re-enter your connection information or reset any options you have customized.

In Reflection, settings files provide a variety of options:

Launch other Reflection products using the Open Settings dialog box
You can start other Reflection products from the Open Settings dialog box, available from the File menu.

Save a settings file as a Windows shortcut
You can save a settings file as a Windows shortcut using the Shortcut button on the Save Settings dialog box. Click this button to open the Shortcut dialog box where you can choose to save the shortcut in any of four locations on your PC. For more information, see the online help.

Save a set of settings in partial settings files

A partial settings file contains information only about specific Reflection settings that contain either keyboard map, mouse map, toolbar, color, hotspots, menus, or connection settings (Reflection for UNIX and Digital only). You can open a partial settings file without altering any of the current settings except for those settings contained in the partial settings file.

Link partial settings files to complete settings files (Reflection for UNIX and Digital only)

You can create and save a link between a partial settings file and a complete settings file; this is recommended for advanced users only. Doing so lets you automatically establish a relationship between the two types of files so that whenever you load a complete settings file the partial settings file automatically loads as well. This is useful among a group of Reflection users who might share a toolbar as a toolbar partial settings file. The link becomes permanent when you save the complete settings file.

View the contents of settings files

The View Settings dialog box displays information from all of Reflection's Setup dialog boxes, as well as other settings. You can use the View Settings dialog box to look at most of Reflection's current settings, or only those settings that have changed from their defaults. You can also change Reflection settings from this dialog box.

File Extensions Used by Reflection Products

Complete settings files are product-specific, meaning they belong only to the Reflection product that created them. You identify a complete settings file and the product it belongs to by its file name extension:

Reflection Product Name	File Extension
Reflection X	.rxc
Reflection for UNIX and Digital	.r2w
Reflection for IBM	.rsf
Reflection FTP Client	.rfw
Reflection for ReGIS Graphics	.r4w
Reflection for HP	.r1w

Reflection for UNIX and Digital

Unlike a complete settings file, a partial settings file does not belong to a specific Reflection for Windows product. You can use a partial settings file created in one product to change the settings for another Reflection product. For example, a color settings file created in Reflection for ReGIS Graphics can be used by Reflection for UNIX and Digital.

Reflection for UNIX and Digital identifies a partial settings file by one of the following file name extension:

Type of Partial Settings	File Extension	Explanation
Keyboard map	.rkm	Contains information about keyboard mapping
Mouse map	.rkm	Contains information about mouse mapping
Toolbar	.rtb	Contains all information relevant to toolbars
Colors	.rcr	Contains the color configuration
Menus	.rmu	Contains the menu bar configuration
Hotspots	.rhs	Contains the hotspot configuration
Connection	.rco	Contains connection settings

Reflection for IBM

Reflection for IBM recognizes five different types of partial settings files. These partial settings files are listed in the Save Settings File and Open Settings File dialog boxes, along with settings files:

Type of Partial Settings	File Extension	Explanation
Keyboard/Mouse Map	.map	Contains information about keyboard and mouse mapping
Toolbar	.btp	Contains all information relevant to the toolbar
Colors	.clr	Contains the color configuration
Hotspot/Hotlist	.hsp	Contains the hotspot and hotlist configuration
Menus	.mnu	Contains the menu bar configuration

Creating and Opening Settings Files

When creating a new settings file, start a new session of Reflection and change only settings you need from the factory defaults. Or, reset Reflection to its factory defaults using the Defaults command on the Setup menu.

Creating a Settings File

To create a new settings file:

1. If you already have a settings file loaded, make any changes to customize your settings.
2. On the File menu, click Save As.

3. Select the type of settings file you want to save from the **Save as type** list; either a complete settings file or one of the partial settings file types.
4. Enter a name and location for the settings file in the **File name** box. It is recommended that you save settings files in the Reflection User folder.
5. Click Save.

Opening a Settings File

To open a settings file:

1. On the File menu, click Open.
2. Select the type of settings file you want to open from the **Files of type** list; either a complete settings file or one of the partial settings file types.
3. Select the name of the settings file you want to open:
   - If you select a complete settings file that belongs to the Reflection product you are currently running, select the **New Window** check box to open this settings file in a different window. Or, clear this check box to open the settings file in your current copy of Reflection; this will drop an active host connection, if applicable.
   - If you select a complete settings file that belongs to another Reflection product, that product will start in its own window with these settings.
   - If you select a partial settings file, the settings contained in that file will temporarily replace the applicable set of partial settings currently active in Reflection.
4. Click Open.

Getting Additional Help

See the Reflection online help for information on sample color settings files shipped with Reflection, a description of partial settings files, how to restore Reflection factory defaults, and how to link partial settings files to complete settings files (applicable in Reflection for UNIX and Digital only).

CHAPTER 17

Printing with Reflection Suite for X

There are a variety of ways to print and log information with various components of Reflection Suite for X:

- Accessing the printing capabilities of your *Windows printer* through the Print command on the File menu when working in Reflection for UNIX and Digital or Reflection for IBM (discussed next).
- Submitting a print job to a network printer with *LPR* (line printer requester)—page 139.
- Connecting to *NFS* remote printers—page 140.
- Capturing host data to a printer or a file by *logging* when working in Reflection for UNIX and Digital (covered in the online help for that product).
- Emulating an *IBM 3287 printer* when working in Reflection for IBM (covered in the Reflection for IBM online help).

Printing from Reflection for UNIX and Digital and Reflection for IBM

Both Reflection for UNIX and Digital and Reflection for IBM allow you to print host information displayed in the terminal window. Reflection for UNIX and Digital also offers additional output options, including printing information from display memory, printing to a disk file, and logging. Reflection for IBM enables your PC to emulate an IBM 3287 printer, so you can print from an IBM mainframe host computer.

To print from Reflection:

1. Decide what you want to print.

   To print a portion of the terminal window, proceed to step 2. To print the entire window, skip to step 3.

2. Specify a portion of the terminal window to print:

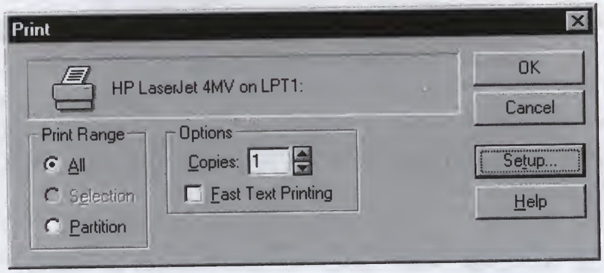
   ▲ To select an area in the terminal window, press the left mouse button and drag to a different spot. All text between these two points is selected.

   ▲ To select a word in the terminal window, double-click on the word with the left mouse button.

   ▲ To select a line in the terminal window if you're using Reflection for UNIX and Digital, click the mouse pointer in the left margin of the terminal window. For Reflection for IBM, point anywhere on the line, then hold down the Shift key and double-click the left mouse button.

   ▲ To select a rectangular area of the terminal window if you're using Reflection for UNIX and Digital, hold down the Ctrl key, click the left mouse button and drag. In Reflection for IBM, simply click the left mouse button and drag.

3. On the File menu, click Print to open the Print dialog box:



HP LaserJet 4MV on LPT1:

Print Range
● All
○ Selection
○ Partition

Options
Copies: 1
☐ Fast Text Printing

4. Select a Print Range option. These are explained in the online help.

5. Click OK to begin printing.

The Now Printing dialog box opens. When the dialog box closes, the information is sent to your default Windows printer.

Printing with LPR

LPR is a line printer requester that you can use to submit print jobs to a host print queue on the network. In order to use LPR, you must send the job to a host that offers LPD print services, and you must have print privileges on that host. (Check with your system administrator to find out if these services are available.) A variety of print formats is supported.

There are two primary ways you can use LPR to print:

- Use LPR to print jobs from within Windows applications—for example, you can choose an LPR printer as your print destination from within your word processor or spreadsheet.
- Use LPR to print a file that has already been created and saved. This is called direct printing.

If you're using direct printing in Windows 95, you must define at least one LPR print queue before you can send a print job to a remote LPD printer. The procedure for doing this differs depending on the type of printing you are doing (within a Windows application or using direct printing).

If you're using Windows 95, you must also add a Windows printer that corresponds to your LPR print queue, and configure it as an LPR printer.

Printing to an LPR Print Queue from a Windows Application

If you will use LPR to send print jobs to a remote printer from within a Windows application, you need to configure a Windows printer as an LPR printer.

When you print from within your application, you can choose this printer from the list of available printers, just as you would select a printer attached to your local PC or a network printer, and Windows will send the print job to your remote LPD printer. You can add, change, or remove LPR printer queue definitions the same way you would add any other Windows printer.

To set up LPR printing, follow the appropriate procedure for the version of Windows that is running on the PC—see the online help for LPR for detailed instructions. (To get to the help without actually running LPR, click the X Help icon in the Reflection Documents folder on the start Menu. Click Network Applications to get to the LPR help file.)

Connecting to NFS Remote Printers

Before you can send a print job to an NFS printer, you must first configure the printer. The following procedures explain how to set up NFS printing. The procedure used varies depending on whether you plan to print from a DOS session or from a Windows application. You may need to use both procedures.

Note: For printing operations, the NFS Client uses the user name specified during logon to identify you as the owner of your print jobs. This name will appear on any print job banner page. ▲

Printing to an NFS Printer from a Windows Application

To make an NFS printer available from within a Windows application:

1. Double-click the Network Neighborhood icon on your desktop.
2. Double-click Entire Network, then double-click NFS Network.
3. Browse through the network to locate the NFS server that has a printer you want to use. You'll see all printers available on the NFS server.
4. With the right mouse button, click the printer you want to use, then click Install on the shortcut menu. This opens the Add Printer Wizard.
5. Windows 95—You are asked if you need to print from DOS applications. Click No.

   Windows NT 4.0—You may see this message: "The server on which the printer resides does not have a suitable printer driver installed." Click OK.
6. A list of printer types appears. Select the printer option that matches the NFS host printer.

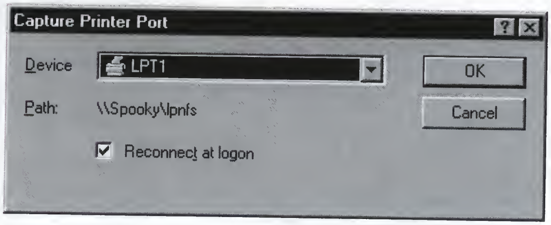
7. When you're asked if you want to keep the existing driver type, answer Yes.
8. When asked to provide a name for this printer, you may want to use a name to help you remember that this is an NFS printer (for example, lpnfs).
9. Within most Windows applications, use Print Setup to select this printer for your print jobs.

Printing to an NFS Printer from a DOS Session

There are multiple ways to print to an NFS printer from a DOS session. In an NT or Windows 95 environment, you can use the `nfsnet` or `net use` commands to assign a printer port. For details on the syntax of `nfsnet`, see the online help. An additional method, outlined below, is available in a Windows 95 environment.

To make an NFS printer available from within a DOS session (Windows 95 only):

1. Double-click the Network Neighborhood icon on your desktop.
2. Browse through the network to locate the NFS server that has a printer you want to use. You'll see all printers available on the NFS server.
3. With the right mouse button, click the printer you want to use, then click Capture Printer Port on the shortcut menu. The following dialog box appears:



Capture Printer Port

Device: LPT1

Path: \\Spooky\lpnfs

☑ Reconnect at logon

4. Select a printer port. The Capture Printer Port dialog box provides a list of all available printer ports. It's best to pick a port that is not already assigned.
5. Select the **Reconnect at logon** check box if you want the printer port to be assigned to this NFS printer as soon as you log on to NFS.

Use standard DOS PRINT options to direct printing to the port you have assigned.

CHAPTER 18

Connecting to Remote Systems Using the Reflection NFS Client

The Reflection NFS Client is WRQ's NFS implementation for Windows 95 and for Windows NT 4.0. NFS, or Network File System, is a system that runs over TCP/IP and provides transparent access to shared files and printers. (See page 140 for information about printing with NFS.) NFS lets you connect to remote volumes and perform other remote operations. The Reflection NFS Client supports both version 2 and version 3 of the NFS protocol.

The NFS Client also supports NIS (Network Information Service), a directory service used to distribute information in a network of UNIX computers. If NIS is implemented at your site, you can use it when logging on or when browsing NFS servers.

To use the NFS Client, certain NFS software must be present on the remote servers. Check with your system administrator to find out if you are set up to use NFS, and if NIS is implemented.

Logging On to an NFS Authentication Server

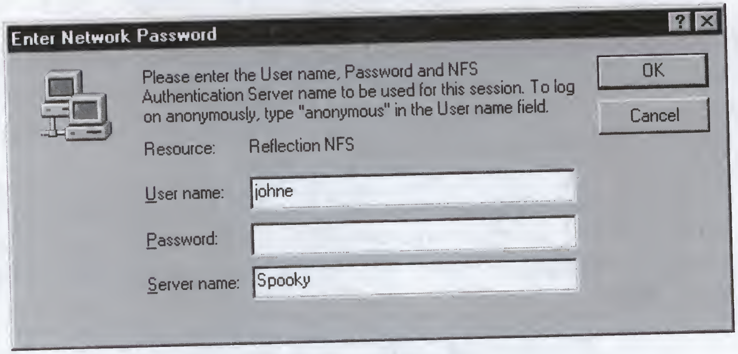
In most cases, you must log on to an NFS authentication server before you can use the NFS file system. The NFS Client does not allow you to browse NFS file systems without logging on to an authentication server.

Note: If your site does not have the pcnfsd daemon on any NFS server, you must use an anonymous login for access to NFS servers. Anonymous users usually have very few privileges. If you're using NIS, you can use an anonymous login if you don't know your user name and password for the NIS domain. Check with your system administrator to find out if an anonymous login is necessary. ▲

Logging On at Windows Startup

By default, you log on to NFS when you start Windows. The following dialog box will appear:

Note: If you log on to another network that uses the same password as your NFS password, you'll automatically be logged on to NFS and will not see this dialog box. See page 146. ▲



Enter Network Password

Please enter the User name, Password and NFS Authentication Server name to be used for this session. To log on anonymously, type "anonymous" in the User name field.

Resource: Reflection NFS

User name: johne

Password:

Server name: Spooky

If your site uses NIS for authentication, **NIS Domain** will appear in the dialog box instead of **Server name**.

To log on:

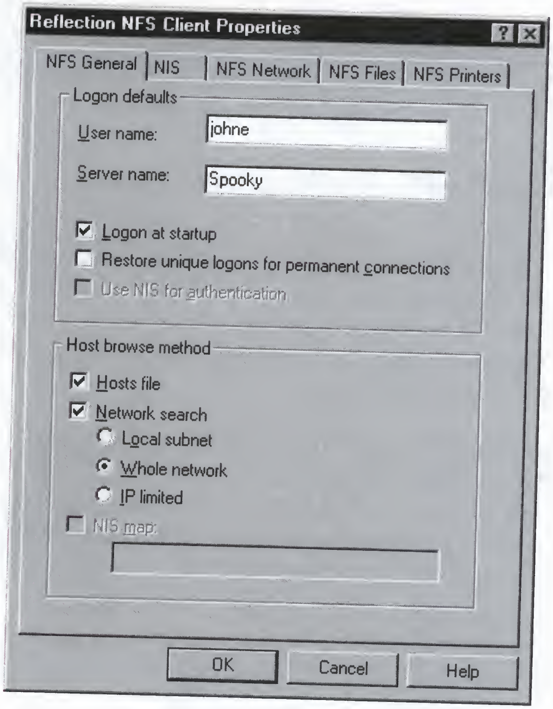
1. In the **User name** box, type your user name for the NFS server that you are logging on to. If you're logging on anonymously, type `anonymous`.
2. In the **Password** box, type the password for the NFS server. Your password entry appears as asterisks to keep your password secure.
3. Type the name or IP address of the NFS server or NIS domain you are logging on to. The NFS server must be running the pcnfsd program (unless you are logging on anonymously). If you are using NIS for authentication, a ypserv daemon that services your NIS domain must be present on the network.

   Note: Depending on the server you are logging on to, any or all of these entries could be case sensitive. ▲

Changing the Default Settings for Your NFS Logon

To change the defaults displayed when you first log on to NFS:

1. Click the Network Neighborhood icon on your desktop with the right mouse button.
2. On the menu that appears, click Properties.
3. In the list of installed network components, double-click Reflection NFS Client. (If you are using Windows NT, you must first select the Services tab.)
4. Click the NFS General tab. The following dialog box appears:


Reflection NFS Client Properties
? ✕
NFS General
NIS
NFS Network
NFS Files
NFS Printers
Logon defaults
Host browse method
OK
Cancel
Help

User name: johne

Server name: Spooky

☑ Logon at startup

☐ Restore unique logons for permanent connections

☐ Use NIS for authentication

☑ Hosts file

☑ Network search

○ Local subnet

● Whole network

○ IP limited

☐ NIS map:

From this tab, you can change the default logon **User name** and **Server name**, as well as other logon options.

Note: In a Windows NT 4.0 environment, you must log on to NFS at startup. Because it is not optional, the **Logon at startup** check box is not available. ▲

Logging On After Windows Startup

By default, you will be prompted at Windows startup to log on to NFS. You may, however, want to log on after Windows startup. For example, you might want to log on to a different NFS server with a different user name and password. Use the following procedure to log on after Windows startup:

1. Double-click the Network Neighborhood icon on your desktop.
2. Double-click Entire Network, and then double-click NFS Network.
3. Click the server name with the right mouse button.
4. On the menu that appears, click NFS Logon.

For information on other logon options, see the online help.

Logging On to NFS with Other Networks Present

It is likely that your PC is connected to other networks in addition to NFS (for example, NetWare or Client for Microsoft Networks). Windows provides a mechanism to bypass logons to other networks if the first password provided is the same for subsequent logons. If you configure NFS as your primary network logon (Windows 95) or first in network access order (Windows NT 4.0), other network logons that use the same password will not prompt for a password at logon.

If NFS is *not* your primary network logon and you are configured to log on at startup, you will log on to NFS after you log on to your primary network. However, you won't see the NFS Logon dialog box if your NFS logon uses the same password as your primary network logon. Your primary network logon (Windows 95) or network access order (Windows NT) is defined in the Windows Network Control Panel.

If You Have Trouble Logging On...

If you experience problems when logging on to your NFS host, try the following:

- Re-enter the user name or password. If you are connecting to a case-sensitive server, be sure to use the correct case.
- A logon problem may indicate that your PC machine name and IP address are not present in the Hosts file on the authentication server. Contact your system administrator for assistance. The logon problem could also indicate that the NFS host is not running. Use the Ping utility (see the online help) to determine if you can communicate with the host.
- Check the Network Event Viewer (see the online help). Messages in the Event Viewer associated with NFS or with WinSock may help determine the cause of the problem.
- Are you trying to log on at the root of a UNIX machine? NFS logons may have different requirements than a Telnet session logon for a UNIX host. Even though you can log on at the root of a UNIX machine using Telnet, this logon may not be acceptable for an NFS logon. For example, some NFS servers (RS6000 and some DEC servers) reject a root NFS login.
- Does this NFS server have pcnfsd running? If not, you can log in as “anonymous.” Use the NFS Administrator utility (see page 154) to search for server daemons and confirm that pcnfsd is running.
- If you’re using NIS for authentication, use the NFS Administrator to explore NIS domains. Confirm that your name is in the passwd.byname map of the NIS domain you are using.

Browsing and Connecting to Remote File Systems

Using the NFS Client, you can connect to an NFS file system in several ways:

- You can make “deviceless” connections by browsing through Network Neighborhood or by using UNC path names.
- You can map a drive to an NFS file system.

Using Deviceless Connections

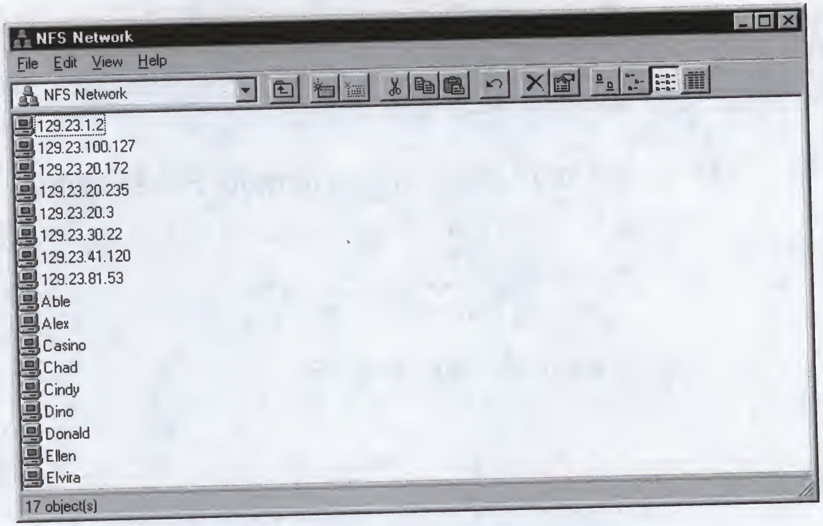
The NFS Client, adhering to the Windows design, allows deviceless connections: you can browse for NFS resources in Network Neighborhood without mapping a drive. These deviceless connections are made automatically when you browse through Network Neighborhood or use Find Computer (on the Start menu) to locate an NFS server and then browse through its file systems. Deviceless connections are also made automatically when you use UNC path names.

Browsing Through NFS File Systems in Network Neighborhood

NFS servers are included as resources in Network Neighborhood even if you haven't yet logged on to NFS. When you double-click one of these servers, you'll see all the file systems and printers on that server available for NFS clients. These are the NFS server's exported file systems (often specified in the server's "exports" file). Double-clicking one of these file systems makes a connection: you'll be automatically logged on using the authentication privileges established when you first logged on to NFS.

To find an NFS server using Network Neighborhood:

1. Double-click the Network Neighborhood icon on your desktop.
2. Double-click Entire Network.
3. Double-click NFS Network. You'll see a list of NFS servers that are available on your network:



129.23.1.2
129.23.100.127
129.23.20.172
129.23.20.235
129.23.20.3
129.23.30.22
129.23.41.120
129.23.81.53
Able
Alex
Casino
Chad
Cindy
Dino
Donald
Ellen
Elvira

17 object(s)

4. To establish a deviceless connection, double-click the file system you want to access.

If you don't see the NFS servers you expect in the Network Neighborhood:

1. Confirm that you're checking the Entire Network. The NFS Network folder should be located within the list of Entire Network resources.
2. Check your host browse method. (You can find the **Host browse method** in NFS Properties, on the NFS General tab. See page 145.) If you don't have a Hosts file and you limit your host browse method to a Hosts file only, you will not see any NFS servers.
3. Use Find Computer to locate the NFS server. Use the server's IP address, if possible.
4. Use the NFS Administrator (see page 154) to search for server daemons. If possible, search for the NFS server using its IP address to confirm that it is available.

Using UNC Path Names to Connect to NFS File Systems

Windows has built-in support for connecting to network resources with UNC (Universal Naming Convention) paths. A UNC path is an alternative to device-path syntax, such as:

```
F:\path
```

If `F:` is a network disk, the equivalent UNC path is:

```
\\host\volume\path
```

where `host` is the name of the network server and `volume` is the name of the server.

You may be familiar with UNIX file system representations. Below is a comparison of a UNIX path with a UNC path:

UNIX File System Representation	`\\barney\/users/nora`
UNC Path Representation	`\\barney\users\nora`

Using UNC path names, you can establish a deviceless connection to an NFS file system. For example, if you want to access a file on an NFS file system from within another application, and you don't have a drive mapped to this file system, you can simply type the UNC path name and the file name. The deviceless connection is automatically established, giving you access to the file.

You can see and use UNC path representation in the following environments:

- At a DOS prompt
- When you click Run on the Windows Start menu
- In Windows-based utilities such as Windows Explorer and Network Neighborhood
- In the Open or Save dialog boxes of Windows applications using files on an NFS server

Mapping a Drive to an NFS File System

Mapping a network drive associates a file system with a local drive letter. You can then use familiar Windows commands (or DOS commands in a DOS session window) for accessing resources on the remote system. You may want to map a network drive if you:

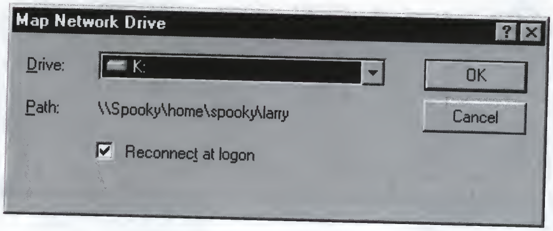
- Often need a connection to the same file system and you want to restore it each time you start Windows.
- Are not able to find your NFS server in Network Neighborhood.
- Need to open files within an application and you don't want to use UNC path names.

To map a network drive for an NFS connection:

1. Double-click Network Neighborhood.
2. Double-click Entire Network.
3. Double-click NFS Network.
4. Double-click the NFS host that has the remote file system you want to map. You can continue to click folders that are beneath this level until you reach the correct file system.

5. With the right mouse button, click the folder that represents the remote file system you want to map.

6. Click Map Network Drive on the shortcut menu. The following dialog box appears:

   Map Network Drive

   Drive: K:

   Path: \\Spooky\home\spooky\larry

   ☑ Reconnect at logon

   Using this method, the path is provided for you. The first available network drive is provided as a default, but you can select other available drives from the list. If the path is not already displayed, enter the directory path for the host file system.

   If a drive is listed as already connected, you can still connect to it. Windows prompts for confirmation before connecting again.

   In Windows NT 4.0, the above dialog box contains a **Connect As** field. You can use this to connect using a different user account.

7. To map a network drive temporarily, clear the **Reconnect at logon** check box. Select this check box if you want to keep this drive mapped when you start Windows again.

Some mapping tips:

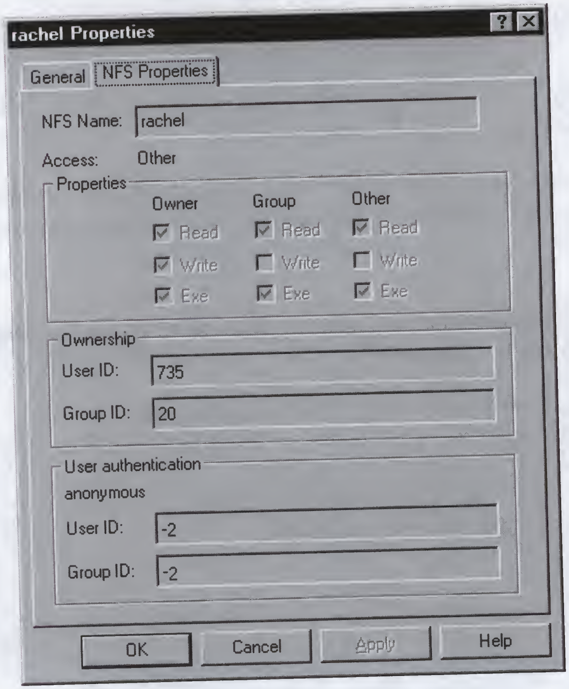
- After you have mapped a network drive, you can customize its NFS settings. See the online help for details.
- You can use Windows Explorer to map a network drive. On the Tools menu, click Map Network Drive, then type in the directory path.
- There are many other ways to map a network drive in Windows. See your Windows online help for more information.

Viewing NFS Properties

The NFS Client provides a quick way to view the file privileges as well as ownership and user ID information for an NFS drive. For additional information about mapped drives, file systems, and print queues, use the NFS Administrator (see page 154).

To view the NFS properties of a file or folder:

1. Browse through Network Neighborhood for the NFS drive you are interested in (see page 148).
2. With the right mouse button, click the file or folder whose properties you want to view.
3. On the menu that appears, click Properties.
4. Click the NFS Properties tab. The following dialog box appears:



NFS Name: rachel

Access: Other

Properties

	Owner	Group	Other
Read	☑	☑	☑
Write	☑	☐	☐
Exe	☑	☑	☑

Ownership

User ID: 735

Group ID: 20

User authentication

anonymous

User ID: -2

Group ID: -2

See the online help for details on each NFS property.

Working with NFS Files

Once you have established a connection to an NFS file system, you can access the files stored in that file system just as you would files on your local PC. The file names used on the NFS file system, however, may not be compatible with the naming conventions used by your PC's operating system or application. Therefore, it is sometimes necessary for NFS file names to be "mapped" to a different name that will adhere to the naming conventions on your PC.

If you are running a 16-bit application or using a DOS application, file names are limited to the 8.3 format. Many UNIX file names are much longer than that. To remedy this problem, NFS truncates a long file name in a DOS or 16-bit application to the first few characters, a tilde, then enough numbers and letters to complete an 8-character sequence. The extension, if present, is kept. Also, if the NFS file name has lowercase or mixed-case letters, all characters are converted to uppercase.

In a Windows 32-bit application, the file name differences are often transparent to the user. (See the next section for details on how to view the file name differences.) Long file names are supported by Windows 95 and Windows NT 4.0, therefore, mapping of long file names is not necessary. However, a file name's case is significant on a UNIX system, whereas on a Windows system, there is often no distinction between uppercase and lowercase file names. Occasionally, problems may be encountered when file names that differ only by case are present in the same folder. In some situations, it may be necessary to rename an NFS file. See the next section for details.

To learn more about file name mapping, see the Reflection NFS online help.

Comparing File Names

To compare NFS (UNIX) file names and Windows file names:

1. Browse through Network Neighborhood for the file or folder you want (see page 148).
2. With the right mouse button, click the file.
3. On the menu that appears, click Properties. The UNIX name is on the NFS Properties tab, while the Windows name is on the General tab. Check the two names to compare which characters are uppercase and lowercase. If there is a conflict between the two names, you may see error messages when performing certain file operations.

Note: You can use the NFS Administrator (see below) to compare these file name representations. The NFS Administrator also shows the file name as it appears to 16-bit applications that require file name mapping. ▲

Renaming an NFS File

To rename an NFS file:

1. Browse through Network Neighborhood for the file or folder you want to rename (see page 148).
2. With the right mouse button, click the file.
3. On the menu that appears, click Properties.
4. Click the NFS Properties tab.
5. In the **NFS Name** box, type the new file name or folder name. If you're renaming a file or folder in order to avoid potential name conflicts, it is best to give the file a different name (changing only the case will not help). Also, you must have write access to the directory that contains the file in order to change its name.

Note: You can also use the NFS Administrator to rename NFS files and folders. ▲

Using the Reflection NFS Administrator

The Reflection NFS Administrator is a utility you can use to view information about the current NFS remote drives, the remote file systems and print queues you can connect to on various hosts, and the NFS server daemons that are running on your hosts. You can also view information on your current NFS connections, compare NFS file names with the corresponding Windows file names, and rename an NFS file name if you encounter problems with NFS file name mapping.

Opening the NFS Administrator

To open the NFS Administrator:

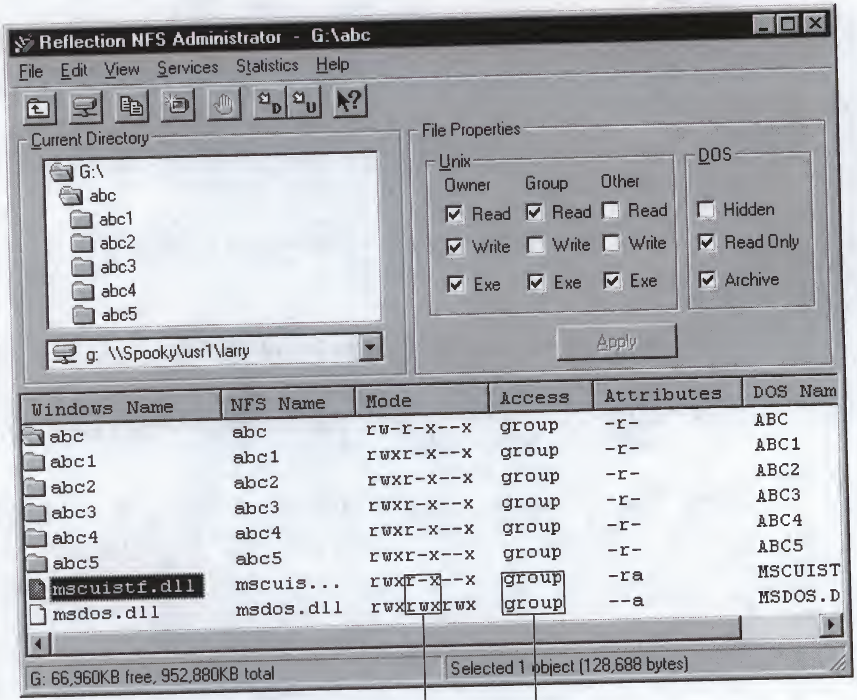
1. With the right mouse button, click the Network Neighborhood icon on your desktop.
2. On the menu that appears, click About NFS. After a welcome screen, an About Box appears. (See "Viewing Information About Your Current NFS Connections" on page 157 for more details on the About Box.)
3. Click OK. The main window appears (see graphic on page 156).

Checking File Privileges on an NFS File System

The NFS Administrator is a good place to check your file privileges for a mapped NFS file system. You may want to do this if you are having trouble accessing a file (see "Troubleshooting Tips for NFS" on page 158).

Note: You can also check your file privileges on NFS servers even if they are not associated with a mapped drive by looking at the file's NFS Properties tab. See page 152. ▲

You can check your file privileges on the main window of the NFS Administrator as illustrated below:


Reflection NFS Administrator - G:\abc
File
Edit
View
Services
Statistics
Help
Current Directory
G:\
abc
abc1
abc2
abc3
abc4
abc5
g: \\Spooky\usr1\larry
File Properties
Apply

Unix
Owner: ☑ Read ☑ Write ☑ Exe
Group: ☑ Read ☐ Write ☑ Exe
Other: ☐ Read ☐ Write ☑ Exe

DOS
☐ Hidden
☑ Read Only
☑ Archive

Windows Name	NFS Name	Mode	Access	Attributes	DOS Nam
abc	abc	rw-r-x--x	group	-r-	ABC
abc1	abc1	rwxr-x--x	group	-r-	ABC1
abc2	abc2	rwxr-x--x	group	-r-	ABC2
abc3	abc3	rwxr-x--x	group	-r-	ABC3
abc4	abc4	rwxr-x--x	group	-r-	ABC4
abc5	abc5	rwxr-x--x	group	-r-	ABC5
mscuistf.dll	mscuis...	rwxr-x--x	group	-ra	MSCUIST
msdos.dll	msdos.dll	rwxrwxrwx	group	--a	MSDOS.D

G: 66,960KB free, 952,880KB total

Selected 1 object (128,688 bytes)

Privileges corresponding with "group" access. r = read, w = write, x = execute

User's access rights

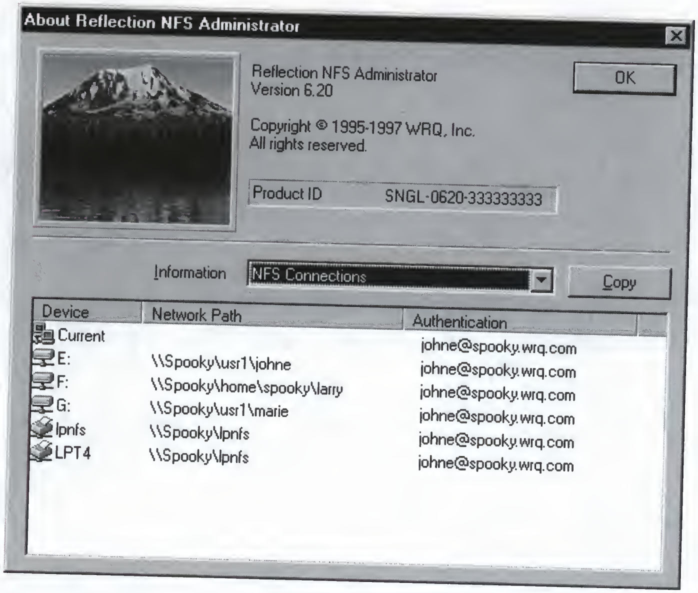
The file privileges are listed under the Mode column. These privileges correspond directly with the types of Access available. The first three items are associated with Owner access. The middle three items are associated with Group access. The last three items are associated with Other access.

Look under the Access column to determine what type of access you have for a particular file, then look at the corresponding privileges for that type of access. For example, in the figure on page 156, the user has group access for the file named Mscuistf.dll. The corresponding privileges are read and execute, with no write privileges. The user also has group access for the file named Msdos.dll, but this time has read, write, and execute privileges.

Viewing Information About Your Current NFS Connections

You can use the NFS Administrator to view information about your current NFS connections:

1. On the Help menu, click About Reflection NFS. (You can also use the procedure described on page 155 to open the About Box.) The following dialog box appears:



Reflection NFS Administrator
Version 6.20

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Product ID SNGL-0620-333333333

Information: NFS Connections

Device	Network Path	Authentication
Current		johne@spooky.wrq.com
E:	\\Spooky\usr1\johne	johne@spooky.wrq.com
F:	\\Spooky\home\spooky\larry	johne@spooky.wrq.com
G:	\\Spooky\usr1\marie	johne@spooky.wrq.com
lpnfs	\\Spooky\lpnfs	johne@spooky.wrq.com
LPT4	\\Spooky\lpnfs	johne@spooky.wrq.com

The Information list contains three choices: **NFS Connections**, **Network**, and **Mount Adams.**

2. Select **NFS Connections**. In the information window, you will see a list of mapped devices as well as deviceless connections, the full network path for each, and the authentication used for logon. The **Current** entry indicates the logon that is the basis for access privileges when browsing the Network Neighborhood or performing other operations using deviceless connections.

Note: Selecting **Network** in the **Information** list shows the PC host name, the IP address, the Windows Sockets version being used, and the description of the Windows Sockets interface. ▲

Troubleshooting Tips for NFS

If you're having trouble with your NFS connections, there are several things you can try:

- Use the Ping utility (see the online help) to confirm that your NFS server is available. First try to ping with the host name. If you're not successful, try the NFS server's IP address.
- Use the Reflection Network Event Viewer (see the online help). You can filter your view of the log to display NFS messages only, and you can set up logging to include information and debug messages that may be helpful.
- If you see "File not found" or "Access denied," it could be because you do not have read, write, or execute privileges (see page 152). If you do have these privileges, however, there could be a potential conflict with two files that differ only by case. NFS can check for files with names that differ only by case before performing operations on a file that could cause the operation to fail. In this situation, you may need to rename the file (see page 154). Another indication of a name conflict can be found in the Network Event Viewer: it will display the message "More than one match was found for the file <*filename*>."
- See page 149 for troubleshooting tips on using the Network Neighborhood to find the NFS server you want.
- See the online help for more troubleshooting information, or check with your system administrator.

Getting Additional Help

Refer to the NFS Client's online help for information on configuring global NFS settings, configuring custom settings for a mapped drive, using the NFS Administrator to check file privileges and compare file names, and troubleshooting various problems.

CHAPTER 19

Connecting to an FTP Server Using the Reflection FTP Client

Reflection FTP Client is a Windows application that you can use to move files between your PC and a host server. Using Reflection FTP Client, you can connect to an FTP server running on a UNIX, OpenVMS, IBM, HP, or other host. You'll find the high speed of FTP transfers particularly handy for transferring large files.

Starting the Reflection FTP Client

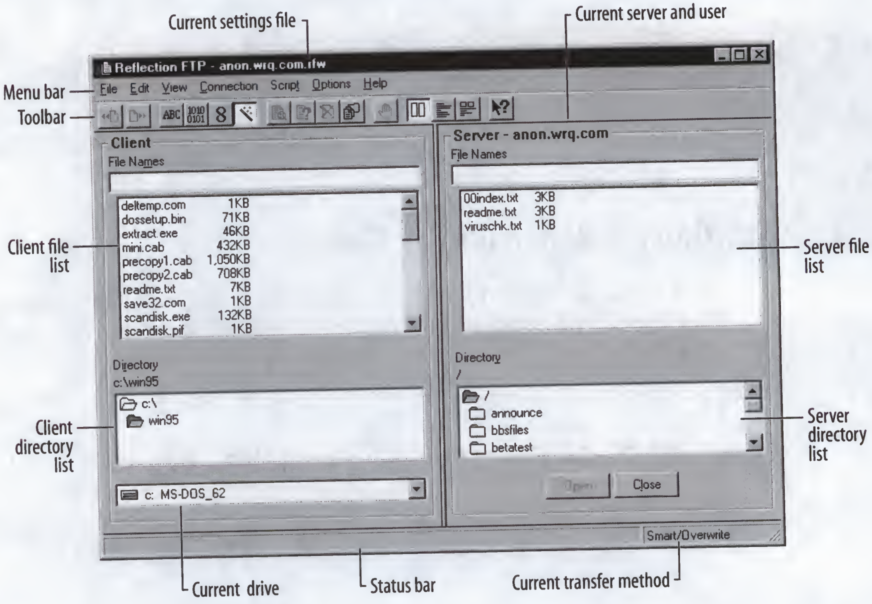
To start the Reflection FTP Client in a Windows 95 or Windows NT 4.0 environment, click the Start button, and then point to Programs. Point to the Reflection folder, then click FTP Client.

Using the Reflection FTP Client Main Window

The FTP Client window provides a menu and toolbar, and the window itself can be set to one of three views (Normal, Command, or Split Window).

Changing the Reflection FTP Client Window View

The FTP Client's current window view determines which controls are visible. When you first start the FTP Client and open a connection to a server, the Reflection FTP window shows the drag-and-drop view, which is called the Normal view.

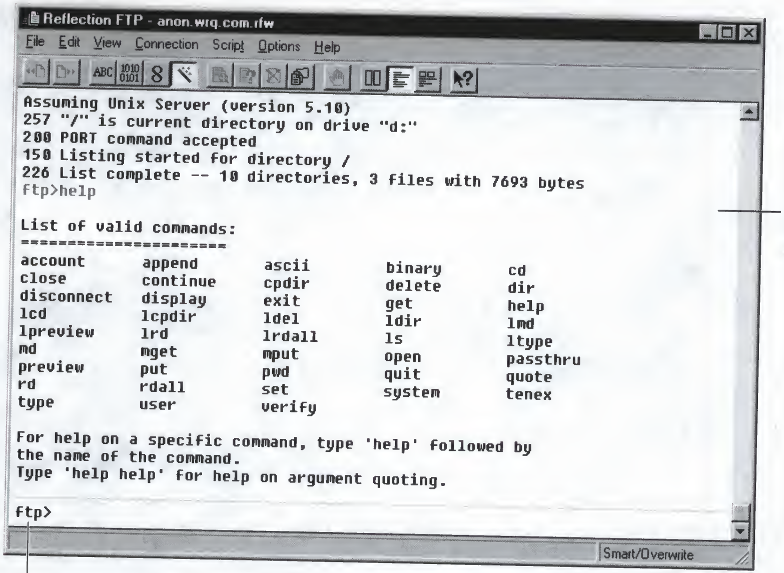

Current settings file
Current server and user
Reflection FTP - anon.wrq.com.rfw
Menu bar
File Edit View Connection Script Options Help
Toolbar
Client
File Names
Server - anon.wrq.com
File Names
Client file list
Server file list
Directory
c:\win95
c:\
win95
Directory
/
/
announce
bbsfiles
betatest
Client directory list
Server directory list
c: MS-DOS_62
Open
Close
Smart/Overwrite
Current drive
Status bar
Current transfer method

deltemp.com	1KB
dossetup.bin	71KB
extract.exe	46KB
mini.cab	432KB
precopy1.cab	1,050KB
precopy2.cab	708KB
readme.txt	7KB
save32.com	1KB
scandisk.exe	132KB
scandisk.pif	1KB

00index.txt	3KB
readme.txt	3KB
viruschk.txt	1KB

In Normal view, the Reflection FTP window displays separate lists of the files in the current client and server directories. From the directory lists, you can select the files you want to transfer, preview, or delete. The FTP command line is hidden.

The Command view displays the FTP command line and the datacomm display window. The drag-and-drop file transfer interface is hidden.



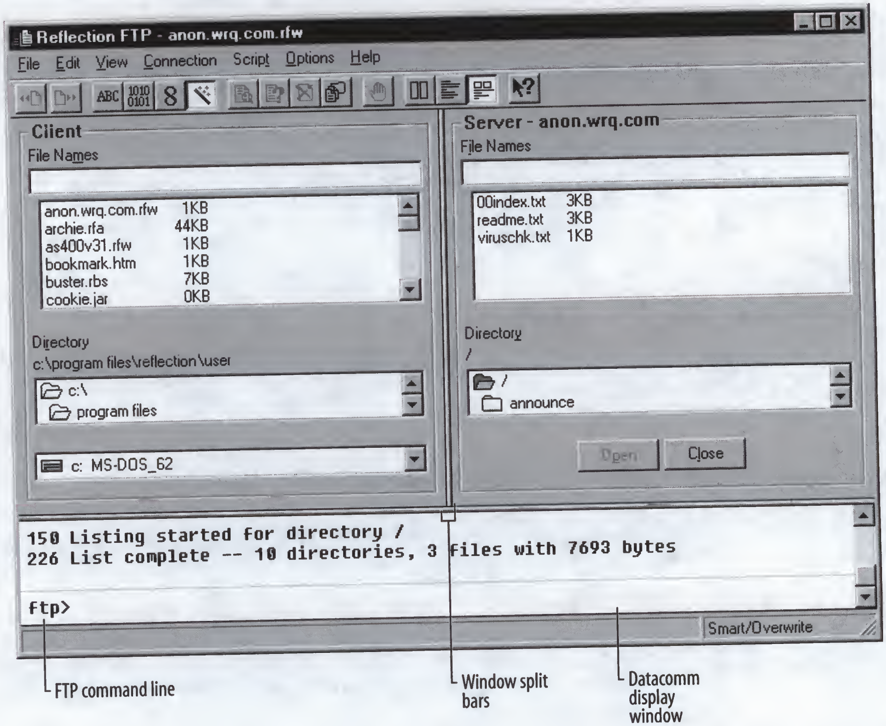
```
Assuming Unix Server (version 5.10)
257 "/" is current directory on drive "d:"
200 PORT command accepted
150 Listing started for directory /
226 List complete -- 10 directories, 3 files with 7693 bytes
ftp>help

List of valid commands:
=======================
account      append       ascii        binary       cd
close        continue     cpdir        delete       dir
disconnect   display      exit         get          help
lcd          lcpdir       ldel         ldir         lmd
lpreview     lrd          lrdall       ls           ltype
md           mget         mput         open         passthru
preview      put          pwd          quit         quote
rd           rdall        set          system       tenex
type         user         verify

For help on a specific command, type 'help' followed by
the name of the command.
Type 'help help' for help on argument quoting.

ftp>
```

Datacomm display window

FTP command line

Reflection FTP Client commands are entered at the FTP command line. The datacomm display window shows you the communication that occurs between the FTP Client application and the server.

The Split Window view displays both the drag-and-drop file transfer interface window and the FTP command line and datacomm display window.


Reflection FTP - anon.wrq.com.rfw
File
Edit
View
Connection
Script
Options
Help
Client
File Names
Directory
c:\program files\reflection\user
c:\
program files
c: MS-DOS_62
Server - anon.wrq.com
File Names
Directory
/
/
announce
Open
Close
Smart/Overwrite
FTP command line
Window split bars
Datacomm display window

```
anon.wrq.com.rfw    1KB
archie.rfa         44KB
as400v31.rfw        1KB
bookmark.htm        1KB
buster.rbs          7KB
cookie.jar          0KB
```

```
00index.txt    3KB
readme.txt     3KB
viruschk.txt   1KB
```

```
150 Listing started for directory /
226 List complete -- 10 directories, 3 files with 7693 bytes

ftp>
```

To change the current view, on the View menu, click Normal, Command, or Split Window. A bullet next to the menu command indicates which view is active.

FTP Command Line

If you prefer to interact with an FTP server by issuing FTP commands instead of using the menus, buttons, and dialog box options provided by Reflection FTP, you can enter commands directly on the FTP command line. You can also enter SET parameters on the FTP command line to change the behavior of Reflection FTP; most dialog box options in Reflection FTP have an equivalent SET parameter.

To get to the FTP command line, the Reflection FTP window must be set to either Command view or Split Window view.

For more information about using FTP commands, see page 172.

Datacomm Display Window

The datacomm display window shows you the communication between the Reflection FTP Client and the server. To see the datacomm display window, the Reflection FTP window must be set to either Command view or Split Window view. The datacomm display window is the area just above the FTP command line. Use the scroll bar at the right of the window to view data that has scrolled off the display screen.

On color monitors, an identifying color is assigned to each type of client/server communication displayed in the window. In addition, distinguishing characters or character strings at the beginning of each line provide a way to identify different kinds of communication.

To customize the display of communication sent to and from the server:

1. On the Options menu in the Reflection FTP window, click Properties.
2. Click the Display tab.
3. In the Command Window box, select or clear these check boxes: **Show Text Sent to Server**, **Show Text Received from Server**, and **Show Errors Received from Server**.

Connecting to an FTP Server

The steps below assume that you are starting the Reflection FTP Client for the first time—without a settings file. The title bar reads "Reflection FTP – (Untitled)." If you started the FTP Client with a settings file, or if the title bar contains the name of a settings file instead of Untitled, click New on the File menu to reset the FTP Client to its factory defaults. You must also be in Normal or Split Window view to follow these steps.

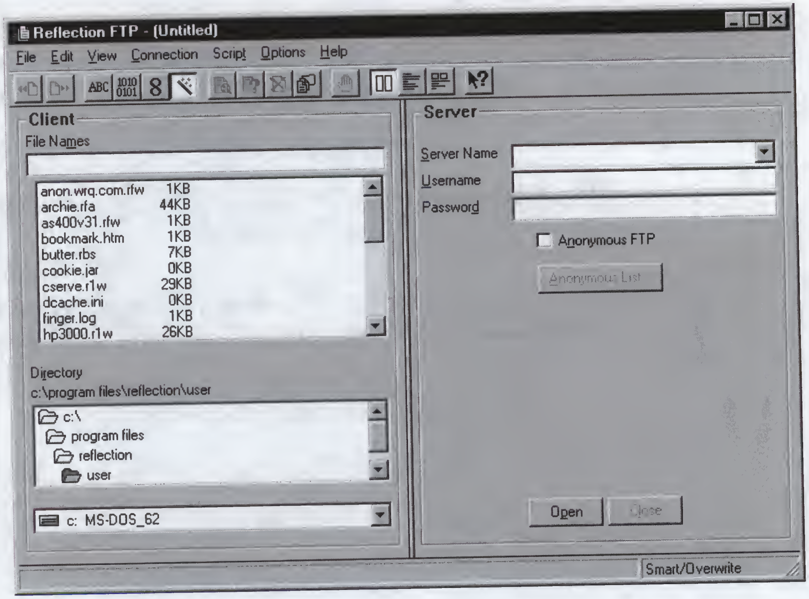
If your site uses a passthrough server, firewall, or proxy server to ensure that only authorized users have access to FTP sites, you can set up the FTP Client for this kind of connection. Check with your system administrator or see the online help for details.

If you want to log in to an anonymous FTP server, see the online help for details.

To set up a connection to an FTP server:

1. Start the Reflection FTP Client (see page 159).

   The FTP Client startup screen appears; after a moment the Reflection FTP window opens.


Reflection FTP - (Untitled)
File Edit View Connection Script Options Help
Client
File Names
Directory
Server
Server Name
Username
Password
☐ Anonymous FTP
Anonymous List
Open
Close
Smart/Overwrite

anon.wrq.com.rfw	1KB
archie.rfa	44KB
as400v31.rfw	1KB
bookmark.htm	1KB
butter.rbs	7KB
cookie.jar	0KB
cserve.r1w	29KB
dcache.ini	0KB
finger.log	1KB
hp3000.r1w	26KB

c:\program files\reflection\user

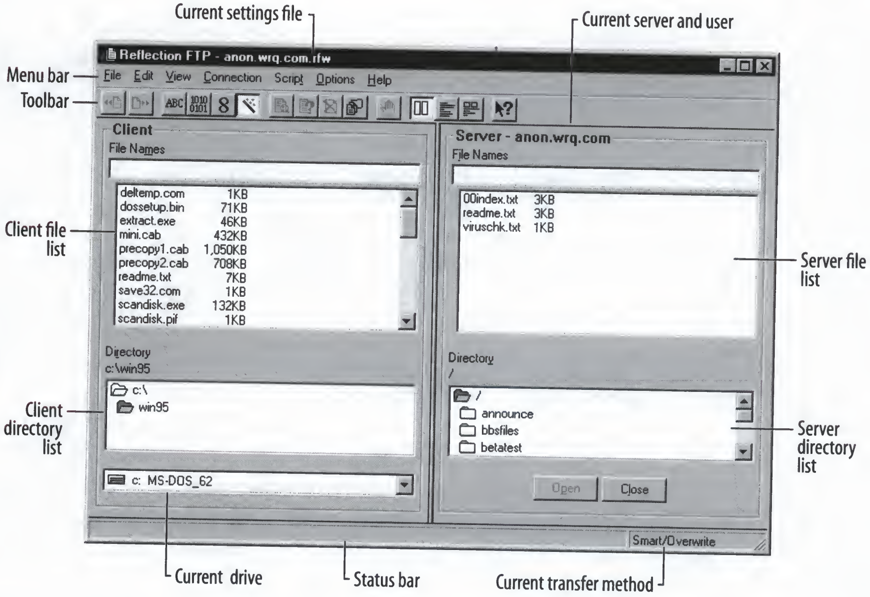
c:\
program files
reflection
user

c: MS-DOS_62

2. In the **Server Name** box, enter the name of the FTP server to which you want to connect. The server name is resolved by the Hosts file on your PC or by a domain name server on your network. If you have no domain name server on the local network and don't use a Hosts file, you must specify the full IP address of the host FTP server (for example, 124.123.36.85).
3. In the **Username** box, enter your user name as it is registered on the FTP server.
4. In the **Password** box, enter your FTP server password.
5. Click Open. The FTP Client opens a connection to the server and logs in using the connection information you provided.

Some FTP servers request an account name as part of the login sequence. If so, you'll see a prompt for an account name as part of the connection process.

After you finish logging in, the server side of the Reflection FTP window displays a list of the files in the current server directory and a list of available server directories:


Current settings file
Current server and user
Menu bar
Toolbar
Client file list
Client directory list
Server file list
Server directory list
Current drive
Status bar
Current transfer method
Reflection FTP - anon.wrq.com.rfw
File
Edit
View
Connection
Script
Options
Help
Client
File Names
Directory
Server - anon.wrq.com
File Names
Directory
Open
Close
Smart/Overwrite

deltemp.com	1KB
dossetup.bin	71KB
extract.exe	46KB
mini.cab	432KB
precopy1.cab	1,050KB
precopy2.cab	708KB
readme.txt	7KB
save32.com	1KB
scandisk.exe	132KB
scandisk.pif	1KB

Directory
c:\win95

c:\
win95

c: MS-DOS_62

00index.txt	3KB
readme.txt	3KB
viruschk.txt	1KB

Directory
/

/
announce
bbsfiles
betatest

For information on other methods of connecting to an FTP server, see the online help.

Saving Your Connection Settings

If you have connected to an FTP server that you plan to use frequently, you should save your current settings to a Reflection FTP Client settings file. This file contains values set from the View, Connection, and Options menus, and by default includes your connection settings. Reflection FTP Client settings files typically have the extension .rfw.

The easiest way to save your settings is to close the current connection by clicking the Close button; the FTP Client prompts you to save all changes to <*filename*>. rfw. The FTP Client proposes a settings file name consisting of the server name that was used for the connection (as specified in the **Server Name** text box). For example, if you connect with the server name best.upper.edu, the FTP Client proposes to save changes to the file best.upper.edu.rfw. Click Yes to save the settings file.

If you want to assign a name of your choice to the settings file for a connection, use the Save As command on the File menu prior to closing the connection. If the Reflection FTP window is "Reflection FTP – (Untitled)," the proposed settings file name defaults to Settings.rfw.

If you create a settings file called Settings.rfw, the FTP Client automatically loads this file at startup. If this file is not found, Reflection FTP Client starts with its factory default settings and an untitled window appears.

Transferring, Previewing, and Deleting Files

This section explains how to use the Reflection FTP Client to transfer files between your PC and an FTP server. It also introduces file preview, file and directory delete, and directory creation services that are provided to help you manage your files.

Setting Up for File Transfer

You can transfer files in the Reflection FTP Client using the drag-and-drop controls, buttons on the toolbar, or the Put and Get commands on the File menu; these methods are available when the window is in Normal or Split Window view. You can also initiate transfers directly from the FTP command line using standard FTP commands. You can transfer any type of file (not merely text files) to and from a server—provided your transfer settings are configured properly.

File transfer settings specify a file transfer method and what to do if the file exists. This is described next.

Choosing a File Transfer Method

The transfer method tells Reflection what type of file is being transferred and determines how the data is handled during the transfer. For most situations, you can configure for file transfers by clicking a transfer method button on the toolbar or by selecting the transfer method on the Options menu.

- **ASCII**—use this method to transfer a text file from your PC to the server or from the server to your PC. Generally, use the ASCII method if a file can be opened and read in the Reflection FTP Preview window. Word processing documents must be saved as text-only before they can be transferred using the ASCII method, since host-based text editors cannot interpret application-specific formatting data.
- **Binary**—use this transfer method to transfer binary files, such as program-specific files. Binary files contain non-printable characters; using this method, a file is not converted or translated during the transfer.
- **Tenex**—use this transfer method (which is also known as "Local 8") if you're moving files to or from an FTP server that uses a non-8-bit byte (such as the DECsystem-20).
- **Smart**—use this transfer method if your FTP client is configured to recognize various types of files based on the file extension (the string of characters following the last period in the file name). When the transfer method is set to Smart, the Reflection FTP Client uses the source file extension to determine what type of file is being transferred. If the source file uses an extension that has not been associated with a file type, Smart file transfer uses the transfer method selected in the **Transfer Method for Undefined Extensions** group box.

  To set up Smart File Transfer, you need to associate various file extensions with specific file types. For example, you can specify that files with names ending in .doc are binary. To configure these associations:

  1. On the Options menu, click Properties.
  2. Click the File Types tab.
  3. Click Add to open the Add Smart File Extension dialog box in which you can associate a file extension with a specific file type.

Note: If you're not sure what format a file is in, you can use the Reflection FTP Preview option to examine part of the file. If the data displayed in the Preview window doesn't look like a simple text file, or if it contains non-printable characters, then it is probably a program-specific file or non-text data file that you should transfer using the binary transfer method. ▲

If File Exists

The If File Exists command on the Options menu shows the current way the FTP Client behaves if a client or server file being transferred already exists in the target location. Point to this command to open a menu from which you can change the current file. transfer mode. These transfer modes are available:

- **Append**—appends the specified file to an existing destination file with the same name. If no such destination file exists, it is created.
- **Ask User**—opens the If File Exists Ask User dialog box so that the user can specify what action should be taken for the current file: skip, overwrite, or rename.
- **Cancel**—cancels the transfer when a file with the specified name already exists in the target location.
- **Overwrite**—overwrites the specified file in the target location, if it exists. If no such file exists, it is created.
- **Skip**—does not transfer the file if a file with the same name exists in the destination directory. If additional files are specified for the current transfer operation, continues with the next file. The names of any files that were skipped during the transfer operation are logged to the datacomm display window.
- **Unique**—directs the FTP Client to create a unique name for the target file if the current name already exists on the target. To create a unique name, the FTP Client adds "#*nn*" (where *nn* is 00 to 99) to the file name. The names of any files that were renamed during the transfer operation are logged to the datacomm display window.

Note: File disposition is handled somewhat differently on OpenVMS and TOPS20 servers. See the online help for a detailed explanation. ▲

For ASCII file transfers, you may also need to enable character translation if your client and server are using different character sets, although in most cases no translation is necessary. To set translation options, click Character Translation on the Options menu. Consult the online help for information about when to use character translation.

File Transfer Overview

When the Reflection FTP window is in Normal or Split Window view, you can use any combination of the following methods to transfer files:

- Select (highlight) one or more file names, or type the names in the box, and click the Transfer button that points in the direction of the transfer.

  If you are transferring a single file, you can also enter a new name for the destination file in the **Client File Names** or **Server File Names** box. If you do not enter a name, it is given the same name as the file you are sending.

  When transferring multiple files, the files are given the same names on the receiving end as they had on the sending end. The Reflection FTP Client can be set to automatically create Windows file names in 8.3 format when a server file name is too long or contains invalid characters.

- Select one or more file names, then drag the group of files to the server file list or to a server folder when sending a group of PC files to the server. When receiving a group of server files to your PC, drag the group of files to the client file list or into a PC directory. This is the drag-and-drop method.

  Hold down the Shift key to select a range of files, or hold down Ctrl and click to select multiple individual files. To deselect one of a group of selected files, hold down Ctrl and click a highlighted name once.

- Select one or more folders, then drag the folders to the server file list or to a server folder to transfer the PC folders and contents to the server. To transfer server folders to the PC, drag them to the client file list or to a PC folder.

- Enter a wildcard entry in the appropriate **File Names** box; the receiving text box must be empty. Then, click the Transfer button. The files are given the same names on the receiving end as they had on the sending end.
- When multiple files are selected, the files are transferred using the current values for transfer method and transfer options. Sets of ASCII, binary, or tenex files should be transferred separately, unless you use Smart file transfer.

Note: If you select multiple files to transfer and then explicitly type in a destination file name, the FTP Client automatically uses the Append transfer mode for the transfer operation, even if that is not the current mode. ▲

When the transfer begins, the File Transfer in Progress window opens. When transferring multiple files, the window displays the name of each file as it is being transferred; if an error stops the transfer, the remaining selected files (or the remaining files matching the wildcard specification) are not transferred.

Processing Files and Folders Using Drag-and-Drop

Drag-and-drop file and folder processing is available when the Reflection FTP window is in Normal or Split Window view. The procedure used to select and drag multiple files or folders is always the same, whether you want to transfer files or folders, preview files, or delete files or folders—the location at which you drop the files or folders determines how they are processed.

Hold down the Shift key to select a range of files or folders, or hold down Ctrl to select multiple individual files or folders. To deselect one of a group of selected files or folders, hold down Ctrl and click a highlighted name once.

- To see information about the selected files, drag them from the client or server list and drop them on the File Information button. This option is not available for folders.
- To preview the files you've selected, drag them from the client or server list and drop them on the File Preview button. The files you've selected display in the Preview window, where you can print, copy, and save all or part of the preview text. You can also search for text in the Preview window. This option is not available for folders.

- To delete the files or folders you've selected, drag and drop them on the File Delete button.
- To transfer the files or folders you've selected, drag them from the client or server list and drop them on the Transfer to Server (Put) or Transfer to Client (Get) button, or drop them on the server or client **File Names** box.

Processing Multiple Files Using Wildcards

You can select groups of files for processing (preview, transfer, or delete) by using wildcard characters:

- Server-specific wildcard characters can be used in the **Server File Names** box to specify multiple files. For example, to send all files in the current directory with the file extension .txt, use the file specification *.txt.

  On some servers, certain characters can be used either as literal characters in a file name or as wildcard characters in a filespec. For such ambiguous characters, the Reflection FTP Client treats the character as a wildcard unless it is surrounded by double quotation marks. For example, to transfer a server file named A* to the PC, enter `"A*"` in the **Server File Names** box. If you want to transfer all files that start with the letter A, do not use double quotation marks: `A*`.
- PC wildcard characters (the ? and * characters) can be used in the **Client File Names** box to specify multiple files. For example, to send all files in the current directory with the file extension .txt, use the filespec *.txt.

Working with Long File Names

Windows 95 and Windows NT support file names consisting of up to 256 characters, while MS-DOS and Windows 3.1 restrict file names to eight characters with a three-character file name extension. When an application creates a file or directory that has a long file name, Windows 95 provides compatibility with DOS-based systems by automatically generating a corresponding alias for that file or directory using the standard 8.3 format.

Only true Windows 32-bit applications can use Windows long file name support. The Reflection FTP Client uses this feature. Consult the online help for information on naming restrictions and how to work with these files.

Creating New Directories (or Folders)

You can use the Create Directory command on the File menu to create a new directory on the client or the server. For PC directories, the directory name specification must follow PC directory naming conventions. For FTP server directories, the directory name specification must follow the conventions of the server operating system.

Using FTP Commands

In the Reflection FTP Client, an FTP command line is available for those who prefer to interact with the FTP server using traditional FTP commands instead of the Windows menu, toolbar, and drag-and-drop controls.

Help on Commands

Online help is available for all FTP commands. The FTP Index provides access to the complete FTP command reference. The index also provides access to a SET Parameter reference, which describes commands you can use to control a wide variety of Reflection FTP settings. To view the FTP Index, search for *Commands, index of FTP commands* in the Reflection FTP Client online help.

Entering Commands

The FTP command line interface allows you to enter FTP commands to open a server connection, move files between the FTP server and your PC, and preview and delete client and server files. To access the FTP command line, the Reflection FTP window must be set to either Command view or Split Window view.

To enter text on the command line, start typing. To execute the command, press Enter ↵. Case is not important for commands and keywords entered on the FTP command line. Depending on your FTP server computer, however, passwords, directory names, file names, and other server-specific information may be case sensitive.

Recalling Commands

Reflection FTP keeps a list of your commands as you type them—up to 50 commands from the current session can be stored on the list. You can use the ↑ key to see the previous command on the list, stepping back sequentially through the commands you've entered. Use the ↓ key to move forward through the list, displaying the next sequential command. Once recalled, you can reuse a command by pressing Enter ↵, or you can edit the command.

Use of Quotation Marks

The following rules for using quotation marks apply to all commands except DIR, DISPLAY, LS, and QUOTE, where no quotation marks should be used:

- Arguments that contain spaces must be enclosed in double quotation marks. For example, to transfer the server file Account History to the PC and name it Accthist.txt, you would enter this command:

  ```
  GET "Account History" TO Accthist.txt
  ```

- If an argument begins with a double quotation mark, all double quotation marks in the argument must be doubled or preceded by a backslash character, and the entire argument must be enclosed in double quotation marks. For example, the server file "Remembering You" would be previewed by entering a command in one of these formats:

  ```
  PREVIEW """Remembering You"""
  PREVIEW "\"Remembering You\""
  ```

Creating FTP Script Files

You can use a script file with the FTP Client to automatically execute FTP commands. For example, you can automate file transfers to and from an FTP server—transfers are carried out without the need to interact directly with the FTP Client. You can implement a routine backup procedure by creating a script that copies a directory of files from your PC to a directory on your FTP server.

An FTP script file is simply an ASCII text file that contains a sequence of FTP commands. Each command must be on a separate line. You can create an FTP script using the FTP script recorder. You can also create a new script or modify an existing script using a text editor (such as Notepad).

The Script menu allows you to record commands entered at the FTP command line, to save recorded commands to a script file, to edit existing scripts, and to play back script files. When you play back a script, commands are executed as though they had been entered at the FTP command line.

Getting Additional Help

See the Reflection FTP Client's online help for information on changing the FTP window view, using FTP commands, and creating FTP scripts.

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